HQS USAFTAC/USATRADOC

AIR-LAND BATTLE PRIMER

JUNE 1978

Views, opinions, and/or findings contained in this pamphlet are those of the authors and should not be construed as official Departments of the Army and Air Force position, policy, or decision, unless so designated by offical documentation.

AIR LAND FORCES APPLICATION AGENCY

LANGLEY AFB — FORT MONROE, VIRGINIA

Army and USAF

PREFACE

This pamphlet presents a broad concept for how U.S. Army and Air Forces might fight together on a modern battlefield in the not too distant future. The information and principles presented may appear somewhat basic; however, the intent is to give the soldier and the airman a fundamental understanding of the other's problems and responsibilities along with some suggested principles for how a joint force may be employed.

Comments by recipients of this document are solicited. Submit comments to the Air-Land Forces Application (ALFA) Agency at either of these addresses:

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CHAPTER 1

INTRODUCTION

1.1 The Setting: Conventional conflict in Europe -- today. The Air-Land Battle in Europe presents the most formidable threat and the most demanding challenge for friendly forces in strategy, timing and effective use of numerically inferior forces.

There may be any number of scenarios for the Air-Land Battle; but, regardless of the scenario, U.S. Army and Air Force forces must be prepared to win the opening battle. This in itself is a departure from the historical U.S. approach to waging war. In the past, we relied on time to bring industrial might, technology, and military organizational talent to bear against the enemy. That time is no longer available. We must plan and train to win now. Once hostilities begin it will be too late.

1.2 The Stage: The concept for the Air-Land Battle is set on this stage:

- Central Europe
  - 1979-1981 Time Frame
    - FM 100-5 and TACM 2-1 Doctrine
      - Current Soviet Doctrine
        - U.S. Forces Initially Defending
          - Non-nuclear

European problem solutions receive priority. They are the difficult ones and may be applied, for the most part, in other areas of the world. The discussion is confined to near term problems of conventional conflict.

1.3 U.S. Objective: The U.S. objective for NATO Europe is set forth in Defense Guidance.

> "THE UNITED STATES IS COMMITTED TO HELP STOP ANY ATTACK ON NATO MEMBERS WITH A MINIMUM LOSS OF TERRITORY, AND TO HELP RESTORE PREWAR BOUNDARIES."
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> SECDEF GUIDANCE, 22 DEC 77

1.4 Scope:

- The focus is on achieving a Tactical Air (TACAIR) allocation and ground force application mix to generate combat power against an enemy to the depth of the battlefield.

- The application of the concept is not limited to any single scenario.

- This publication does not measure the many variables of the Air-Land Battle. Further publications -- study and task force reports -- will cover these facets.

CHAPTER 2

THE AIR-LAND BATTLE DEFINED

2.1 Interdependence: The Army and Air Force are a natural team:

Common Capabilities

- Firepower
- Intelligence
- Air Defense
- Battlefield Logistics
- Electronic Warfare
- C^3

Air and land forces are interdependent. Both can deliver firepower against the enemy. Both can kill tanks. Both can conduct intelligence gathering, air defense, logistics, electronic warfare (EW) operations, Command, Control, and Communications (C^3), and a myriad of other functions that comprise the totality of combat power. Neither Service can fulfill any of those functions completely or by itself. The combination of Army and Air Force capabilities, and their limitations, make the Services a natural team: It is the sum of that capability -- concentrated against an enemy on a major axis of attack -- that forms the base line for defining the Air-Land Battle.

2.2 Air-Land Battle Requirements: The basic requirements of the Air-Land Battle, whether offensive or defensive:

Army and Air Force Together Must

- See the battlefield
  - Concentrate combat power
    - Fight as a team
      - Win

- In the defense, Army and Air Force commanders must be able to see the battlefield to ascertain the location and direction of the main enemy effort. Both Services have reconnaissance and surveillance systems capable of making inputs to the overall intelligence and combat information needs.

- Once the main thrusts are identified, the commanders must bring about a winning concentration of force at the critical points.

- Air and land elements must fight as an integrated team to achieve the needed concentration. As an example, the Air Force will provide close air support (CAS) to engaged ground forces in those areas where success of the overall effort is at stake. The Army in turn provides support in the suppression of enemy air defenses through firepower and electronic means. Moreover, the Army contributes to effective CAS through its capabilities for intelligence collection and target designation.

- The remaining factor is self-evident. Winning in the European context means winning the first -- defensive -- battle with minimum loss of territory. Winning the defensive battle is a necessary prerequisite to undertaking the second task under Defense Guidance, i.e., restoring prewar boundaries.

2.3 Land Combat Operations:

- Offensive
- Defensive
- Retrograde

The requirements to see the battlefield, concentrate combat power, and fight as a team apply to all three of the basic land combat operations. This pamphlet concentrates initially on defensive operations followed by an example of a counter offensive. For practical purposes, retrograde operations resemble many aspects of the defensive and will not be discussed separately.

2.4 TACAIR Missions:

- Close Air Support
- Air Interdiction
- Counter Air
- Reconnaissance/Surveillance
- Airlift
- Special Operations

The Air-Land Battle is a tactical battle fought against enemy forces along a major axis of attack; therefore, it is a critical battle. Within the theater there will be a number of Air-Land Battles, all critical, and all competing for limited combat resources -- TACAIR included -- of the theater.

The TACAIR missions which most immediately influence the Air-Land Battle are Close Air Support against enemy ground forces in contact with friendly elements, Air Interdiction directed against combat elements in follow-on echelons, Counter Air against enemy Close Air Support and attack helicopters, and Reconnaissance and Surveillance for intelligence, combat information, and target acquisition. Local air superiority is necessary to enable these missions to take place.

> "OUR FIRST JOB IN TACAIR IS TO HELP BLUNT AND STOP THE ARMORED THRUST. THIS DOESN'T MEAN THAT THE TOTAL AIR EFFORT WOULD GO TO CLOSE AIR SUPPORT AND BATTLEFIELD INTERDICTION. WE WOULD HAVE TO MAINTAIN LOCALIZED AIR SUPERIORITY TO KEEP THE ENEMY OFF OUR BACKS SO WE COULD OPERATE. THE INTERDICTION TARGETS I'M TALKING ABOUT AREN'T DEEP IN ENEMY TERRITORY. THEY ARE THE ONES THAT THREATEN US IN THE BATTLE AREA, AND ARE RELATED TO OUR JOB OF DEFENDING NATO TERRITORY."
>
> GENERAL DAVID C. JONES*

From a broader theater perspective, offensive and defensive counter air operations will be required to provide security from air attack to our own ground elements and air bases. The other missions, tactical airlift and special air operations, contribute in varying degrees to the successful prosecution of the Air-Land Battle or battles.

- The theater commander apportions TACAIR.

It is the job of the theater commander to apportion available TACAIR assets to the various air missions. This pamphlet will suggest how that percentage of the overall air effort which has been apportioned to the most direct and immediate support for the ground forces might best be used in the conduct of the Air-Land Battle.

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* Interview with Gen D. C. Jones, Chief of Staff, U.S. Air Force, published in Air Force, Sep 75.

CHAPTER 3

THE DEFENSIVE AIR-LAND BATTLE

3.1 Defensive Syllogism: Extending the principle of Army-Air Force interdependence, the following syllogism illustrates the concept of the defensive Air-Land Battle.

MAJOR PREMISE: AT POINTS OF MAIN ATTACK, US ARMY ALONE CANNOT SUCCESSFULLY DEFEND AGAINST A CERTAIN LEVEL OF PACT GROUND FORCES.

The Warsaw Pact, with the initiative of the offensive and its great ground force strength, is theoretically capable of massing sufficient force at some point -- or several points -- in Central Europe against which Allied ground forces cannot successfully defend. There is no agreed "magic number" for the offense to defense ground force ratio. However, the defender can win only if the ratio is kept within certain tolerances. Moreover, it is generally conceded that the Pact is strong enough to exceed the tolerances at certain points of its choosing.

MINOR PREMISE: TACTICAL AIR FORCES CAN APPLY COMBAT POWER AGAINST FULL DEPTH OF PACT GROUND FORCES.

The Air Force can strike advancing Warsaw Pact forces while they are still beyond the range of Army weapons and can continue to strike Pact forces in concert with the Army after the ground forces engage. The flexibility -- the range and speed -- of TACAIR contributes to this capability.

CONCLUSION: THEREFORE, TACTICAL AIR FORCES MUST REDUCE PACT GROUND FORCE LEVEL TO PERMIT SUCCESSFUL DEFENSE

The conclusion satisfies the initial Defense Guidance objective. The Tactical Air Forces have the capability to reduce the ground force ratio by attriting, neutralizing, or delaying the attackers. The contribution of TACAIR may be summarized in terms of an "ideal" and a "minimum" case.

3.2 The Ideal Case:

PRIOR TO MAIN GROUND FORCE ENGAGEMENT -- TACTICAL AIR FORCES REDUCE PACT GROUND FORCE LEVEL TO A POINT WHERE THE ARMY ALONE CAN SUCCESSFULLY DEFEND.

This case is ideal for reasons related to relative ease in command and control and advantages to attack by air. The required Warsaw Pact

attrition and delay is achieved prior to major ground force engagement. As a result, the Army would be able to defeat enemy ground forces at the FEBA without dependence on TACAIR and its attendant requirement for close integration. Moreover, the character and depth of Warsaw Pact target arrays prior to engagement offer significant advantages to attacking aircraft. Targets are relatively densely packed in march column formation and can be identified as hostile simply by location.

There are also disadvantages for attacking aircraft. Any penetration of hostile airspace necessarily involves more risk than operating near the FEBA. In addition, as air operations range deeper into enemy airspace, ground-based electronic defense suppression means become less effective.

3.3 The Minimum Case:

PRIOR TO MAIN GROUND FORCE ENGAGEMENT -- TACTICAL AIR FORCES REDUCE PACT GROUND FORCE LEVEL TO A POINT WHERE ARMY AND TACAIR TOGETHER CAN SUCCESSFULLY DEFEND.

The minimum case could be characterized as the least desirable or maximum risk case. The Pact forces have not been attrited to the required level prior to engagement of the main ground forces. Therefore, the Tactical Air Forces and the Army must mass their firepower at the critical points and times to achieve the combined combat power to halt the enemy offensive.

3.4 Soviet Offensive Doctrine:

- UNREINFORCED ATTACK FOR TACTICAL SURPRISE
  - VIOLENT -- LITTLE OR NO WARNING
  - REACT WITH SPEED -- RETAIN INITIATIVE

Increasingly, Soviet offensive doctrine has been tending to favor the unreinforced attack -- a blitzkrieg-like penetration of many units to overwhelm the NATO defense. Such penetrations are possible if gaps or open flanks in the defenses can be found. In the early stages of NATO preparedness, some penetrations will probably occur. The unreinforced attack poses formidable problems for the attacker as well as the defender. It is not easy to plan beforehand and difficult to control once initiated. Notwithstanding, the Soviets believe that the advantages of retaining the initiative by reacting with speed and agressive action offsets the disadvantages inherent in an uncoordinated attack or hasty planning.

- BREAKTHROUGH
  - NOT FIRST CHOICE TACTIC
  - USED WHEN NO DEFENSIVE GAPS
  - WELL PREPARED
  - CONCENTRATED
  - TWO-PHASED OPERATION
  - CREATE GAPS FOR EXPLOITATION FORCES
  - EXPANDING PENETRATIONS

When the Soviet commander can find no gaps or flaws in the opponent's defenses, he adopts the breakthrough tactic to rupture the forward defenses and permit passage of exploitation forces. The breakthrough is not his preferred tactic, but when required, he devotes meticulous planning, a high concentration of combat power, and massive artillery preparation to the effort.

3.5 Frontal Aviation: In the past fifteen years, Soviet Frontal Aviation has evolved from a force structured for theater air defense to one capable of performing the full range of TACAIR missions. With respect to the Air-Land Battle, the most concern is with Frontal Aviation's capability to conduct counter-air, close air support, and interdiction operations.

- FRONTAL AVIATION OBJECTIVES
  - DEFEAT NATO TACAIR
  - ELIMINATE NATO NUCLEAR CAPABILITY
  - SUPPORT GROUND FORCES

The primary objectives for Frontal Aviation -- in concert with elements of Long Range Aviation (LRA) and Pact air forces -- are to disrupt and gain superiority over the NATO air forces and to foreclose NATO's option to employ nuclear weapons. Most scenarios envision a multi-wave attack by Pact air to:

- Open corridors through SAM defenses.
- Strike air bases, command and control facilities, and nuclear storage.

- Strike at deeper targets. Targets beyond range of Frontal Aviation would be attacked by LRA.

• GROUND ATTACK GROWING IN IMPORTANCE

A further objective -- and one gaining in importance as evidenced by changing doctrine and new weapon systems -- is ground attack. In a short-warning situation, Frontal Aviation would concentrate on attacking ground forces which are moving toward defensive positions. In addition to attacking maneuver units, Frontal Aviation can be expected to continue suppression attacks on friendly air defense artillery throughout the battle.

• FRONTAL AVIATION RESOURCES INCLUDE

- Fixed wing
- Helicopters

As with ground forces, NATO TACAIR is outnumbered by its Pact counterpart. In 1977, there were 3,000 Warsaw Pact tactical aircraft, against 1,700 NATO. The large numbers of Pact tactical aircraft could maintain repeated attacks against friendly airfields, tactical nuclear facilities, and C^3, as well as deliver ordnance with good accuracy against friendly ground forces.

3.6 First Task -- Theater View:

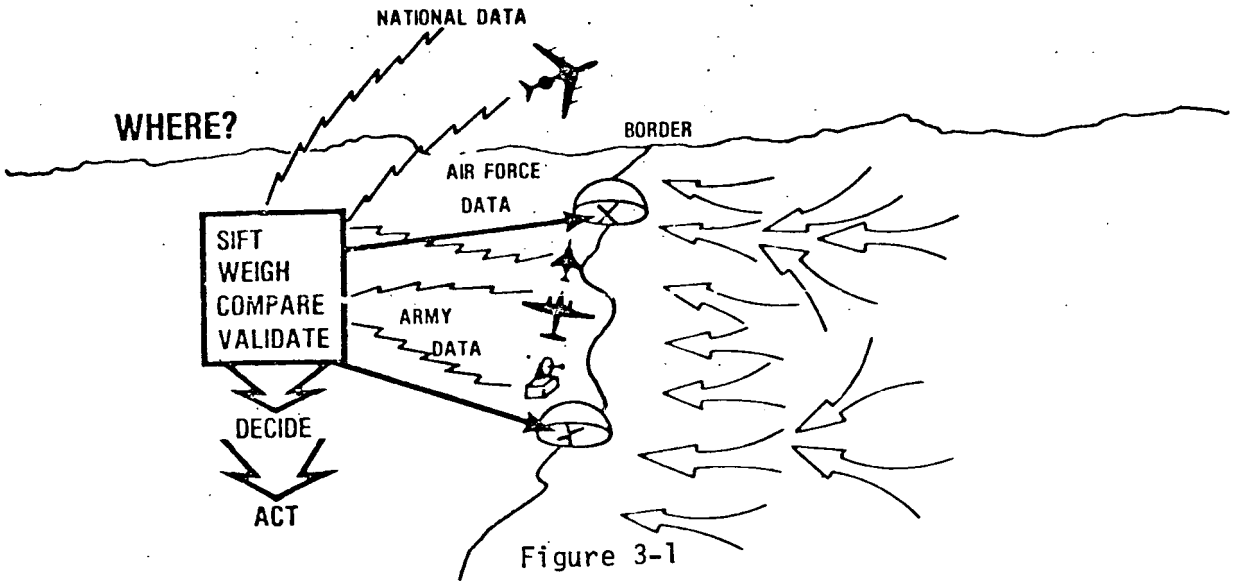

Figure 3-1

Because of the likelihood of more than one Air-Land Battle, the first task for the defender from a theater perspective is to see into the enemy side with sufficient clarity to determine where these critical battles will be fought. The problem is complex. The Pact has such a preponderance of

force that it will require considerable effort to identify the true major axes of attack. All-source data -- national and service-owned -- must be considered in order to permit timely, accurate decision making and concentration of friendly forces at the right places. The concentration must be timely, preferably before hostilities begin.

3.7 Soviet Echelonment -- Corps Sector:

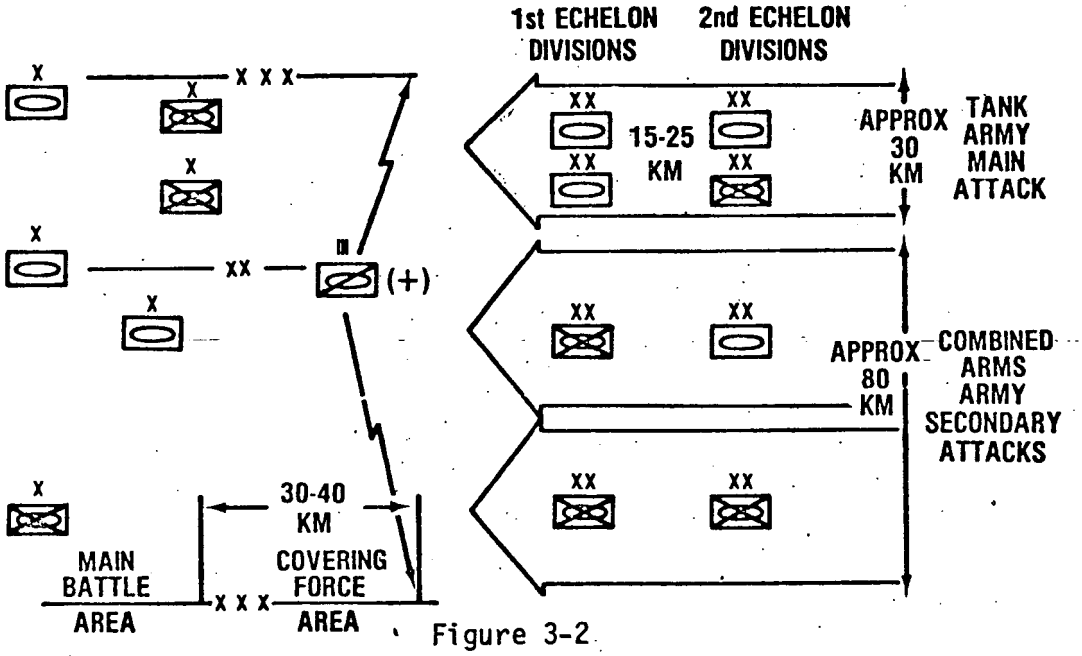

Figure 3-2

Shifting focus from theater level to a U.S. Corps sector faced with one of the main attacks, there may be two Pact tank or combined arms armies disposed as shown above. The tank army conducting the main attack would be concentrated on a narrow front, in deep echelon. The U.S. Corps in the defense, two divisions and an armored cavalry regiment, would deploy a heavy covering force forward of the main battle area (MBA). The covering force -- a heavily reinforced cavalry regiment spread across the corps sector -- is no match for the heavier enemy force.

3.8 The Active Defense:

- COVERING FORCE MISSION
  - REVEAL MAIN ATTACK
  - GAIN TIME
  - DIVEST AIR DEFENSES
  - DECEIVE ENEMY
- MAIN BATTLE FORCE MISSION
  - DECISIVE BATTLE
  - DESTROY ENEMY

The covering force is strong enough to accomplish four important tasks:

- First, force the enemy into revealing the strength, location, and general direction of his main attack or attacks; and force early commitment of his main attack echelons against the covering force.

- Second, gain time so that the corps commander can concentrate his combat power in the main battle area to meet the main attack.

- Third, divest the enemy of his air defense umbrella, or at least require the enemy to displace his air defenses before attacking the MBA, and

- Fourth, deceive the enemy as to the composition and location of friendly forces, especially those in the MBA.

Behind the covering force lies the area in which the main battle will be fought. It is the mission of the force in the MBA to engage the enemy in decisive battle and destroy him. The overall system of defense is active, with commanders at every level economizing forces in less threatened areas to concentrate against the main attack. The concept of active defense is to wear down the attacker by confronting him continuously with strong elements fighting from mutually supporting and successive battle positions.

3.9 Defensive Operations in the Division Sector:

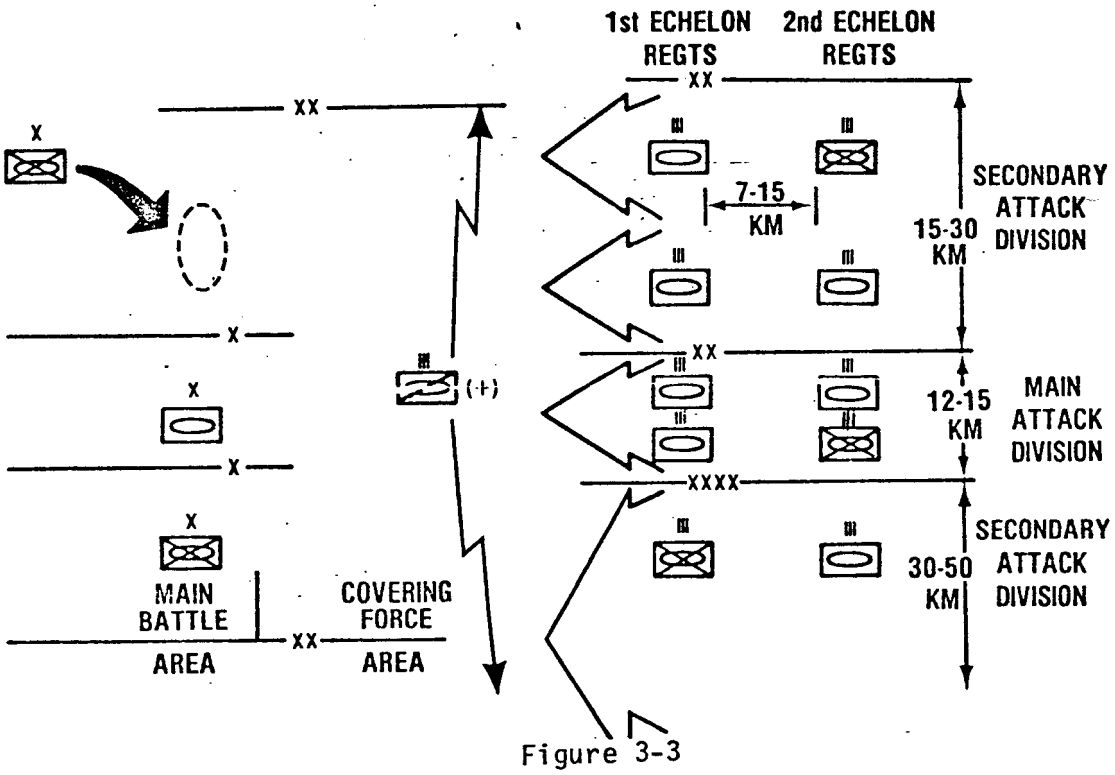

Figure 3-3

The situation in the division sector is similar to that at corps level, on a lesser scale. In the enemy main attack division, regiments are concentrated on a very narrow front. If the Division Commander is provided with accurate and timely information from national and service intelligence sources, the enemy will not find gaps or weakly defended areas when he reaches the MBA. He will be forced to adopt the breakthrough tactic.

NOTE: Warsaw Pact regiments have been selected as the basic building blocks for illustrating the Red Ground portion of the concept because the regiment represents a tactical entity of considerable combat power -- aproximately 120 armored fighting vehicles. There is no intent to task friendly strike pilots with identifying and separating out enemy regiments on the battlefield. It is the job of intelligence and command and control to find the correct targets and direct strike flights to them.

3.10 Initial Contact:

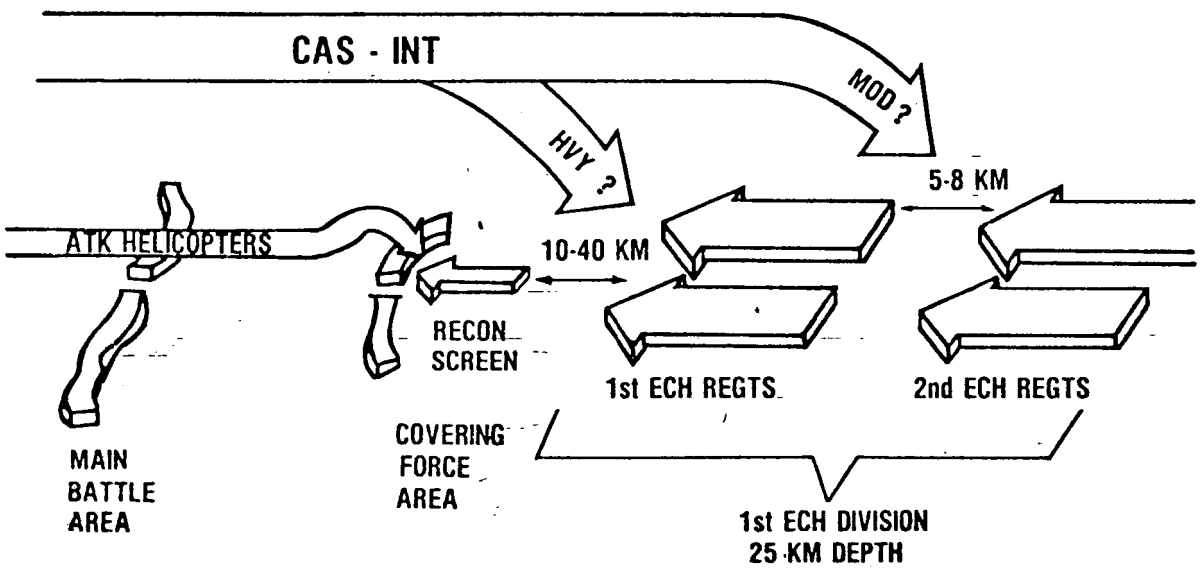

Figure 3-4

Figure 3-4 is the first of a series of conceptual snapshots illustrating events in stop-action. The snapshot depicts the initial contact between the Pact reconnaissance screen -- a battalion size force -- and elements of the covering force. Main ground force engagement has not occurred. The lead regiments of the Pact first echelon division are some distance behind.

The covering force should require little close air support in this initial situation. Attack helicopters can deal with points of pressure. At this stage, the two most critical threats to the defending division in the MBA are the first and second echelon regiments in that order. Therefore, a heavy level of TACAIR effort is employed against the first echelon regiments, and a lesser, but substantial effort is committed against the second echelon. The weights shown represent a subjective estimate of how available air-ground attack and defense suppression assets might be distributed in this division sector. Exact values are not currently known; thus, the weights are depicted with question marks.

3.11 Closure of Leading Regiments:

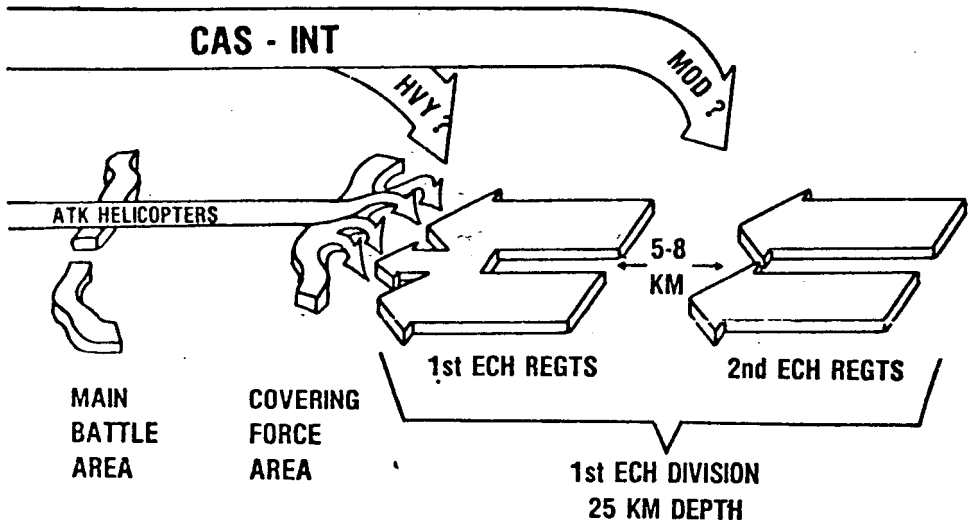

Figure 3-5

As the Pact leading regiments close with the covering force, heavy TACAIR pressure is continued. Meanwhile, friendly ground forces have begun to engage the enemy first echelon, first with artillery fire and then as they draw closer, with anti-tank guided missiles (ATGM), tank gun fire, and attack helicopters.

3.12 Covering Force Delay:

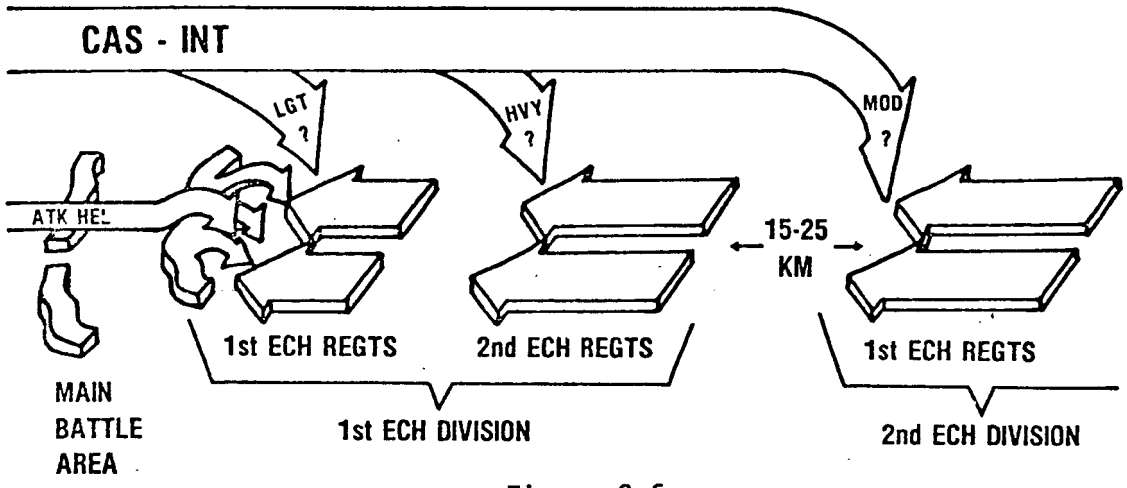

Figure 3-6

As the first echelon regiments engage the covering force, the intensity of Army firepower increases. This, coupled with the damage inflicted by TACAIR from detection to closure should free some TACAIR for redistribution to the second echelon regiments, Close air support pressure continues to be maintained against the lead regiments. In addition, offensive air attacks must be mounted against the lead regiments of the second echelon divisions. The objective of these attacks is to slow or prohibit the commitment of second echelon divisions to the MBA.

- THE COVERING FORCE DEFENDS

Covering Force squadrons and battalions fight just as would similar units in the main battle area -- but not to the point of decisive engagement. They must survive to fight as part of the force in the MBA. But the covering force must offer determined resistance to force the enemy to deploy his main forces, thereby slowing his momentum. As enemy pressure continues to mount, elements of the covering force begin to delay rearward maintaining contact and providing resistance.

3.13 Engagement -- Main Battle Area:

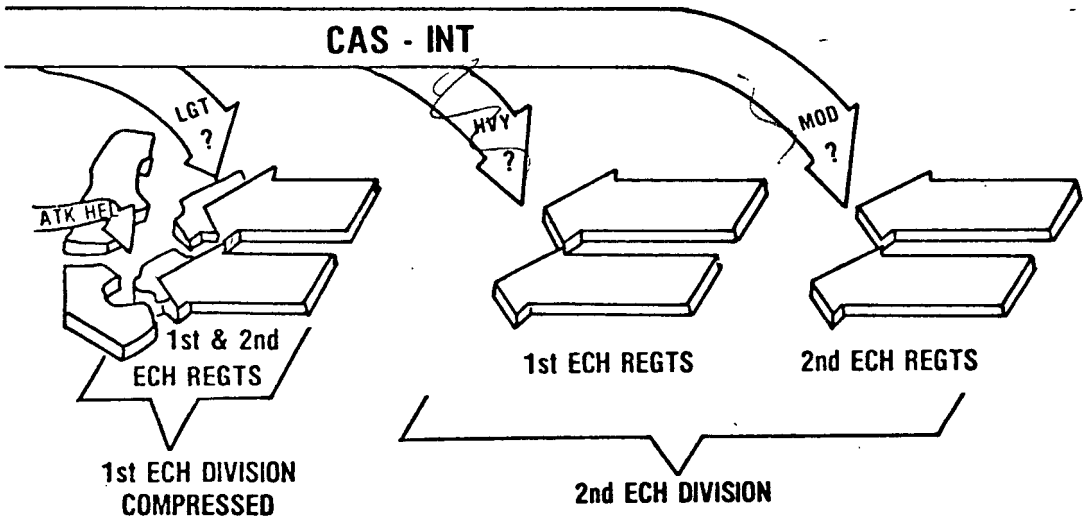

Figure 3-7

Figure 3-7 depicts the action as elements of the covering force have completed their delay and deployed in the MBA. The first and second echelon regiments of the lead divisions are now engaging friendly elements in the MBA. Assumptions underlying this snapshot are (1) the enemy main attack has been identified, (2) friendly forces have been deployed to proper defensive positions, and (3) the requisite level of damage to the first echelon enemy division has occurred. This requisite level of damage must be translated into a ratio of enemy versus friendly ground combat power at the critical times and places. As a rule of thumb, U.S. ground forces can defend and win against up to a three to one ratio. This ratio can pulse higher, but not for long.

Expectations are that a U.S. division in the MBA may be opposed by up to five tank and/or motorized rifle divisions. Thus the U.S. division, with about 350 tanks, may be opposed by approximately 1540 tanks. These comparisons begin to establish the level of attrition that will be necessary before the enemy reaches the MBA, or less desirably, after he gets there.

If the above conditions have been met, distribution of TACAIR air-to-ground assets will be similar to the preceding snapshot -- light in the MBA, heavy on the lead regiments of the second echelon division, and substantial on the second echelon regiments of that division.

3.14 Redistribution of Effort:

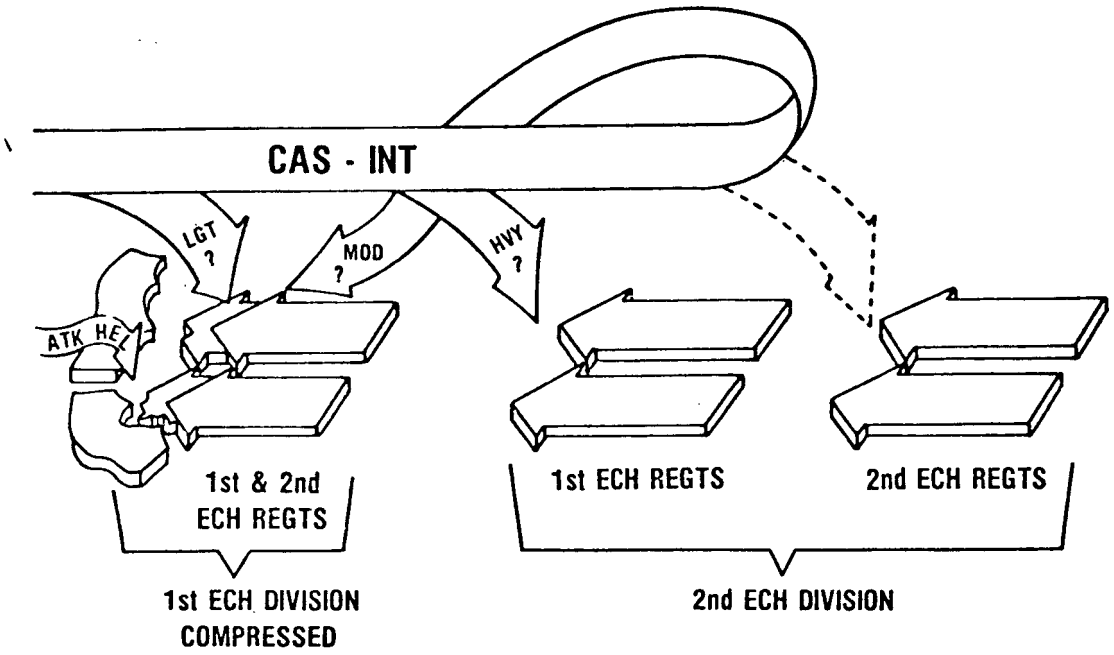

FIGURE 3.8

If the U.S. ground commander has not been fully successful in concentrating his forces to meet the main enemy thrust, a substantially higher level of CAS will be required. In this case, the TACAIR effort on the less critical targets would be reduced and redistributed where it is needed. Such redistribution demands a great deal of flexibility in command and control. Moreover, Army and Air Force command and control systems must interact to such a degree that both services have the same awareness of events at the line of contact and deeper.

Figure 3-8 shows the problem in depth on a single axis, but the same principles apply to redistribution of effort to lateral problem areas in the vicinity of secondary attacks, if necessary. Redistribution may be preplanned well beforehand or take the form of a diversion of airborne attack aircraft.

3.15 Breakthrough:

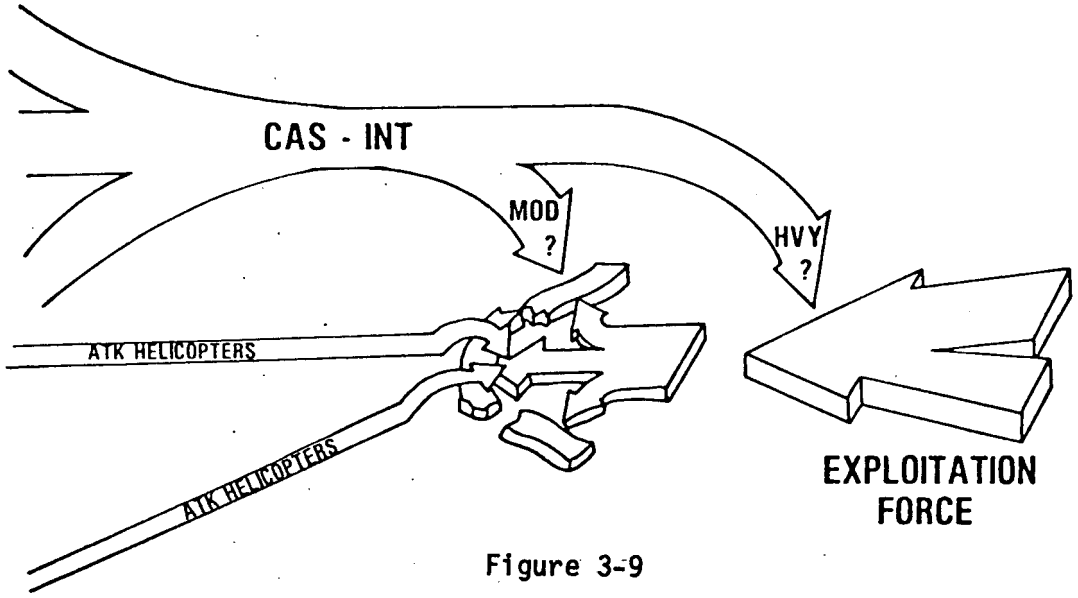

Figure 3-9

The final snapshot deals with a successful Pact breakthrough -- a dangerous and not unlikely situation. In order to mass sufficient combat power at the critical time and place, the ground commander will have to draw forces from elsewhere in his sector. This involves risk.

The ground commander must draw units from where he can find them without jeopardizing the defense against the main attack.

- Combat units in reserve and those in unthreatened areas will be drawn in to halt the breakthrough.

- Rear echelon elements must be ready to defend themselves.

- A heavy concentration of TACAIR and attack helicopters will be required to cope with the threat.

Figure 3-9 shows the heaviest TACAIR effort against the exploitation forces on the presumption that the breakthrough units have a lesser combat effectiveness due to attrition, fatigue, and a reduced level of ammunition and fuel.

3.16 Defensive Concept Summarized:

- WEIGHT OF TACAIR EFFORT PLACED ON NEAREST MAIN FORCE NOT YET ENGAGED -- PRESSURE MAINTAINED UNTIL CLOSURE.
  - WHEN ARMY ENGAGES ENEMY FORCES, WEIGHT OF TACAIR IS REDISTRIBUTED AGAINST NEXT FORCE IN ECHELON AND FOLLOW-ON FORCES.
    - INCREASES IN CAS REQUIREMENTS SATISFIED BY DRAWING DOWN LEVEL OF EFFORT ON LESS CRITICAL TARGETS.
      - DEMANDS ARMY-AIR FORCE TEAMWORK AND FLEXIBILITY OF COMMAND/CONTROL.

APPENDIX B

GLOSSARY

Air Defense: All defensive measures designed to destroy attacking enemy aircraft or missiles in the earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (JCS Pub 1)

Air Interdiction: Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces, at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (JCS Pub 1)

Battlefield Interdiction: Battlefield interdiction may have a direct effect on surface operations and must be coordinated but not integrated with surface forces' fire and movement.

Close Air Support (CAS): Air attacks against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. (JCS Pub 1)

Counter Air: A United States Air Force term for air operations conducted to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces. Both air offensive and air defensive actions are involved. The former range throughout enemy territory and are generally conducted at the initiative of the friendly forces. The latter are conducted near to or over friendly territory and are generally reactive to the initiative of the enemy air forces. (JCS Pub 1)

Forward Edge of the Battle Area (FEBA): The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units. (JCS Pub 1)

TACAIR: Tactical Air as used herein is a generic term to include CAS, air interdiction, counter air, tactical reconnaissance, tactical airlift, and special operations.

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- Electronic Warfare
- C^3

Air and land forces are interdependent. Both can deliver firepower against the enemy. Both can kill tanks. Both can conduct intelligence gathering, air defense, logistics, electronic warfare (EW) operations, Command, Control, and Communications (C^3), and a myriad of other functions that comprise the totality of combat power. Neither Service can fulfill any of those functions completely or by itself. The combination of Army and Air Force capabilities, and their limitations, make the Services a natural team. It is the sum of that capability -- concentrated against an enemy on a major axis of attack -- that forms the base line for defining the Air-Land Battle.

2.2 Air-Land Battle Requirements: The basic requirements of the Air-Land Battle, whether offensive or defensive:

Army and Air Force Together Must

- See the battlefield
  - Concentrate combat power
    - Fight as a team
      - Win

- In the defense, Army and Air Force commanders must be able to see the battlefield to ascertain the location and direction of the main enemy effort. Both Services have reconnaissance and surveillance systems capable of making inputs to the overall intelligence and combat information needs.

- Once the main thrusts are identified, the commanders must bring about a winning concentration of force at the critical points.

- Air and land elements must fight as an integrated team to achieve the needed concentration. As an example, the Air Force will provide close air support (CAS) to engaged ground forces in those areas where success of the overall effort is at stake. The Army in turn provides support in the suppression of enemy air defenses through firepower and electronic means. Moreover, the Army contributes to effective CAS through its capabilities for intelligence collection and target designation.

- The remaining factor is self-evident. Winning in the European context means winning the first -- defensive -- battle with minimum loss of territory. Winning the defensive battle is a necessary prerequisite to undertaking the second task under Defense Guidance, i.e., restoring prewar boundaries.

2.3 Land Combat Operations:

- Offensive
- Defensive
- Retrograde

The requirements to see the battlefield, concentrate combat power, and fight as a team apply to all three of the basic land combat operations. This pamphlet concentrates initially on defensive operations followed by an example of a counter offensive. For practical purposes, retrograde operations resemble many aspects of the defensive and will not be discussed separately.

2.4 TACAIR Missions:

- Close Air Support
- Air Interdiction
- Counter Air
- Reconnaissance/Surveillance
- Airlift
- Special Operations

The Air-Land Battle is a tactical battle fought against enemy forces along a major axis of attack; therefore, it is a critical battle. Within the theater there will be a number of Air-Land Battles, all critical, and all competing for limited combat resources -- TACAIR included -- of the theater.

The TACAIR missions which most immediately influence the Air-Land Battle are Close Air Support against enemy ground forces in contact with friendly elements, Air Interdiction directed against combat elements in follow-on echelons, Counter Air against enemy Close Air Support and attack helicopters, and Reconnaissance and Surveillance for intelligence, combat information, and target acquisition. Local air superiority is necessary to enable these missions to take place.

> "OUR FIRST JOB IN TACAIR IS TO HELP BLUNT AND STOP THE ARMORED THRUST. THIS DOESN'T MEAN THAT THE TOTAL AIR EFFORT WOULD GO TO CLOSE AIR SUPPORT AND BATTLEFIELD INTERDICTION. WE WOULD HAVE TO MAINTAIN LOCALIZED AIR SUPERIORITY TO KEEP THE ENEMY OFF OUR BACKS SO WE COULD OPERATE. THE INTERDICTION TARGETS I'M TALKING ABOUT AREN'T DEEP IN ENEMY TERRITORY. THEY ARE THE ONES THAT THREATEN US IN THE BATTLE AREA, AND ARE RELATED TO OUR JOB OF DEFENDING NATO TERRITORY."
>
> GENERAL DAVID C. JONES*

From a broader theater perspective, offensive and defensive counter air operations will be required to provide security from air attack to our own ground elements and air bases. The other missions, tactical airlift and special air operations, contribute in varying degrees to the successful prosecution of the Air-Land Battle or battles.

- The theater commander apportions TACAIR.

It is the job of the theater commander to apportion available TACAIR assets to the various air missions. This pamphlet will suggest how that percentage of the overall air effort which has been apportioned to the most direct and immediate support for the ground forces might best be used in the conduct of the Air-Land Battle.

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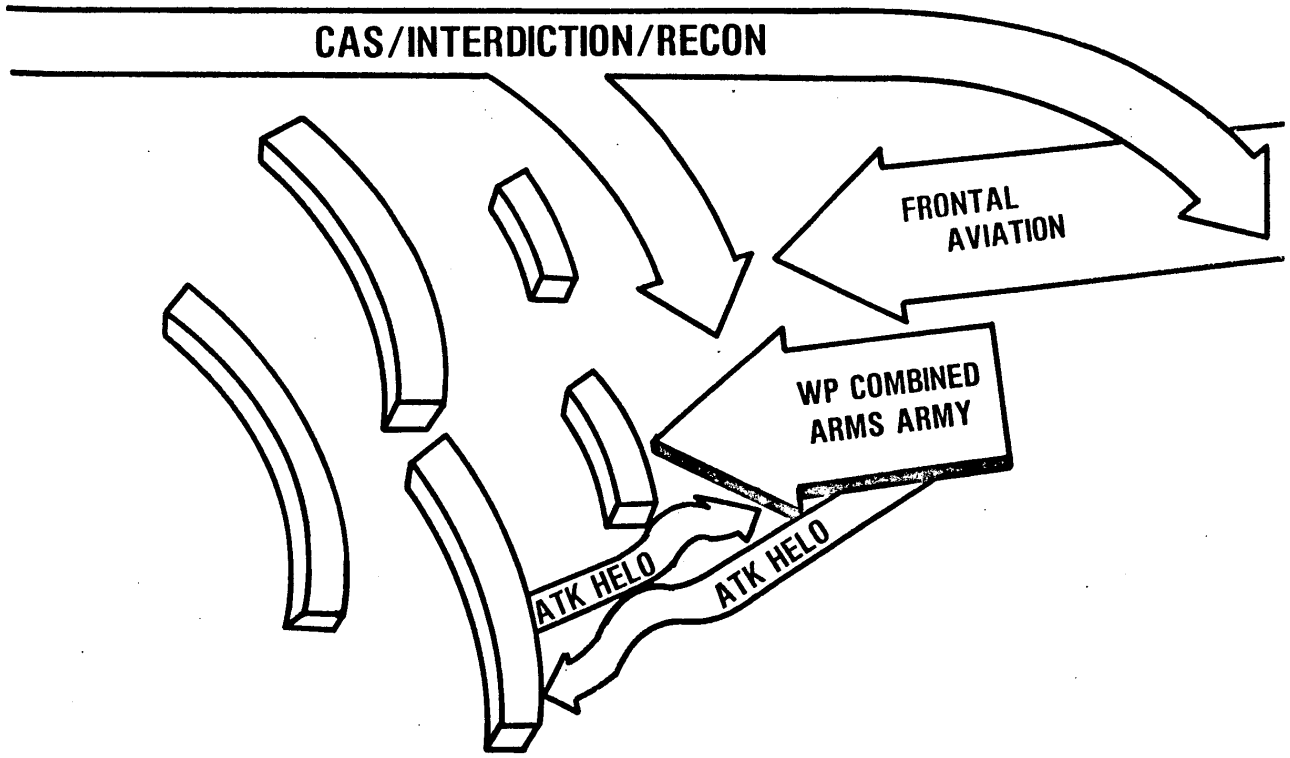
* Interview with Gen D. C. Jones, Chief of Staff, U.S. Air Force, published in Air Force, Sep 75.

DEFENSIVE AIR-LAND BATTLE



CHAPTER 3

THE DEFENSIVE AIR-LAND BATTLE

3.1 Defensive Syllogism: Extending the principle of Army-Air Force interdependence, the following syllogism illustrates the concept of the defensive Air-Land Battle.

MAJOR PREMISE: AT POINTS OF MAIN ATTACK, US ARMY ALONE CANNOT SUCCESSFULLY DEFEND AGAINST A CERTAIN LEVEL OF PACT GROUND FORCES.

The Warsaw Pact, with the initiative of the offensive and its great ground force strength, is theoretically capable of massing sufficient force at some point -- or several points -- in Central Europe against which Allied ground forces cannot successfully defend. There is no agreed "magic number" for the offense to defense ground force ratio. However, the defender can win only if the ratio is kept within certain tolerances. Moreover, it is generally conceded that the Pact is strong enough to exceed the tolerances at certain points of its choosing.

MINOR PREMISE: TACTICAL AIR FORCES CAN APPLY COMBAT POWER AGAINST FULL DEPTH OF PACT GROUND FORCES.

The Air Force can strike advancing Warsaw Pact forces while they are still beyond the range of Army weapons and can continue to strike Pact forces in concert with the Army after the ground forces engage. The flexibility -- the range and speed -- of TACAIR contributes to this capability.

CONCLUSION: THEREFORE, TACTICAL AIR FORCES MUST REDUCE PACT GROUND FORCE LEVEL TO PERMIT SUCCESSFUL DEFENSE

The conclusion satisfies the initial Defense Guidance objective. The Tactical Air Forces have the capability to reduce the ground force ratio by attriting, neutralizing, or delaying the attackers. The contribution of TACAIR may be summarized in terms of an "ideal" and a "minimum" case.

3.2 The Ideal Case:

PRIOR TO MAIN GROUND FORCE ENGAGEMENT -- TACTICAL AIR FORCES REDUCE PACT GROUND FORCE LEVEL TO A POINT WHERE THE ARMY ALONE CAN SUCCESSFULLY DEFEND.

This case is ideal for reasons related to relative ease in command and control and advantages to attack by air. The required Warsaw Pact

attrition and delay is achieved prior to major ground force engagement. As a result, the Army would be able to defeat enemy ground forces at the FEBA without dependence on TACAIR and its attendant requirement for close integration. Moreover, the character and depth of Warsaw Pact target arrays prior to engagement offer significant advantages to attacking aircraft. Targets are relatively densely packed in march column formation and can be identified as hostile simply by location.

There are also disadvantages for attacking aircraft. Any penetration of hostile airspace necessarily involves more risk than operating near the FEBA. In addition, as air operations range deeper into enemy airspace, ground-based electronic defense suppression means become less effective.

3.3 The Minimum Case:

PRIOR TO MAIN GROUND FORCE ENGAGEMENT -- TACTICAL AIR FORCES REDUCE PACT GROUND FORCE LEVEL TO A POINT WHERE ARMY AND TACAIR TOGETHER CAN SUCCESSFULLY DEFEND.

The minimum case could be characterized as the least desirable or maximum risk case. The Pact forces have not been attrited to the required level prior to engagement of the main ground forces. Therefore, the Tactical Air Forces and the Army must mass their firepower at the critical points and times to achieve the combined combat power to halt the enemy offensive.

3.4 Soviet Offensive Doctrine:

- UNREINFORCED ATTACK FOR TACTICAL SURPRISE
- VIOLENT -- LITTLE OR NO WARNING
- REACT WITH SPEED -- RETAIN INITIATIVE

Increasingly, Soviet offensive doctrine has been tending to favor the unreinforced attack -- a blitzkrieg-like penetration of many units to overwhelm the NATO defense. Such penetrations are possible if gaps or open flanks in the defenses can be found. In the early stages of NATO preparedness, some penetrations will probably occur. The unreinforced attack poses formidable problems for the attacker as well as the defender. It is not easy to plan beforehand and difficult to control once initiated. Notwithstanding, the Soviets believe that the advantages of retaining the initiative by reacting with speed and agressive action offsets the disadvantages inherent in an uncoordinated attack or hasty planning.

- BREAKTHROUGH
  - NOT FIRST CHOICE TACTIC
  - USED WHEN NO DEFENSIVE GAPS
  - WELL PREPARED
  - CONCENTRATED
  - TWO-PHASED OPERATION
  - CREATE GAPS FOR EXPLOITATION FORCES
  - EXPANDING PENETRATIONS

When the Soviet commander can find no gaps or flaws in the opponent's defenses, he adopts the breakthrough tactic to rupture the forward defenses and permit passage of exploitation forces. The breakthrough is not his preferred tactic, but when required, he devotes meticulous planning, a high concentration of combat power, and massive artillery preparation to the effort.

3.5 Frontal Aviation: In the past fifteen years, Soviet Frontal Aviation has evolved from a force structured for theater air defense to one capable of performing the full range of TACAIR missions. With respect to the Air-Land Battle, the most concern is with Frontal Aviation's capability to conduct counter-air, close air support, and interdiction operations.

- FRONTAL AVIATION OBJECTIVES
  - DEFEAT NATO TACAIR
  - ELIMINATE NATO NUCLEAR CAPABILITY
  - SUPPORT GROUND FORCES

The primary objectives for Frontal Aviation -- in concert with elements of Long Range Aviation (LRA) and Pact air forces -- are to disrupt and gain superiority over the NATO air forces and to foreclose NATO's option to employ nuclear weapons. Most scenarios envision a multi-wave attack by Pact air to:

- Open corridors through SAM defenses.
- Strike air bases, command and control facilities, and nuclear storage.

- Strike at deeper targets. Targets beyond range of Frontal Aviation would be attacked by LRA.

• GROUND ATTACK GROWING IN IMPORTANCE

A further objective -- and one gaining in importance as evidenced by changing doctrine and new weapon systems -- is ground attack. In a short-warning situation, Frontal Aviation would concentrate on attacking ground forces which are moving toward defensive positions. In addition to attacking maneuver units, Frontal Aviation can be expected to continue suppression attacks on friendly air defense artillery throughout the battle.

• FRONTAL AVIATION RESOURCES INCLUDE

- Fixed wing
- Helicopters

As with ground forces, NATO TACAIR is outnumbered by its Pact counterpart. In 1977, there were 3,000 Warsaw Pact tactical aircraft, against 1,700 NATO. The large numbers of Pact tactical aircraft could maintain repeated attacks against friendly airfields, tactical nuclear facilities, and C^3, as well as deliver ordnance with good accuracy against friendly ground forces.

3.6 First Task -- Theater View:

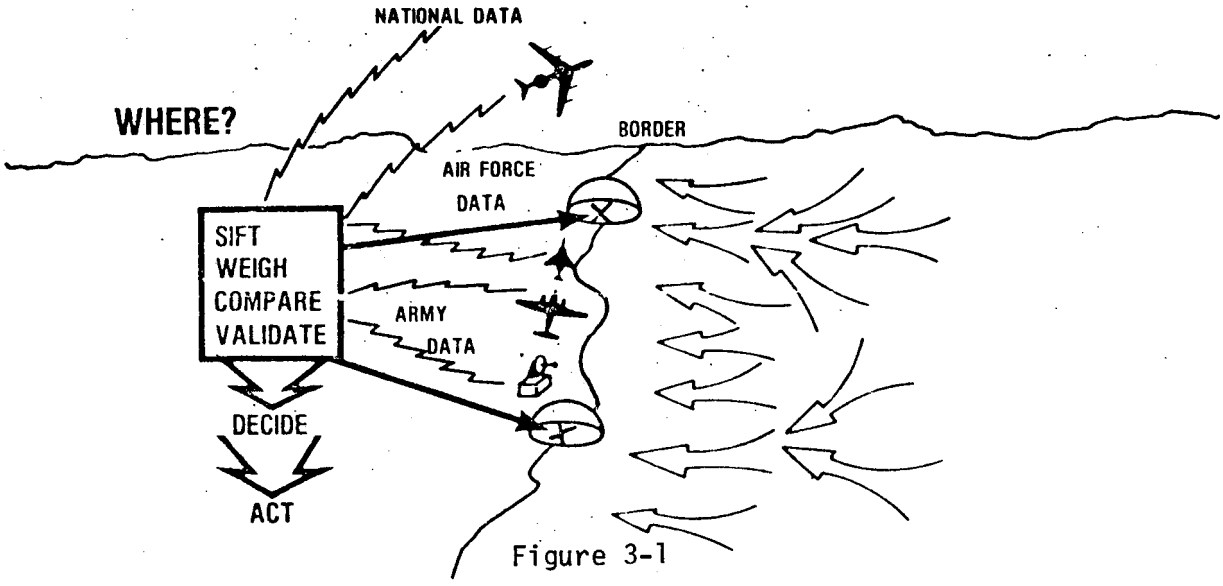


Figure 3-1

Because of the likelihood of more than one Air-Land Battle, the first task for the defender from a theater perspective is to see into the enemy side with sufficient clarity to determine where these critical battles will be fought. The problem is complex. The Pact has such a preponderance of

force that it will require considerable effort to identify the true major axes of attack. All-source data -- national and service-owned -- must be considered in order to permit timely, accurate decision making and concentration of friendly forces at the right places. The concentration must be timely, preferably before hostilities begin.

3.7 Soviet Echelonment -- Corps Sector:

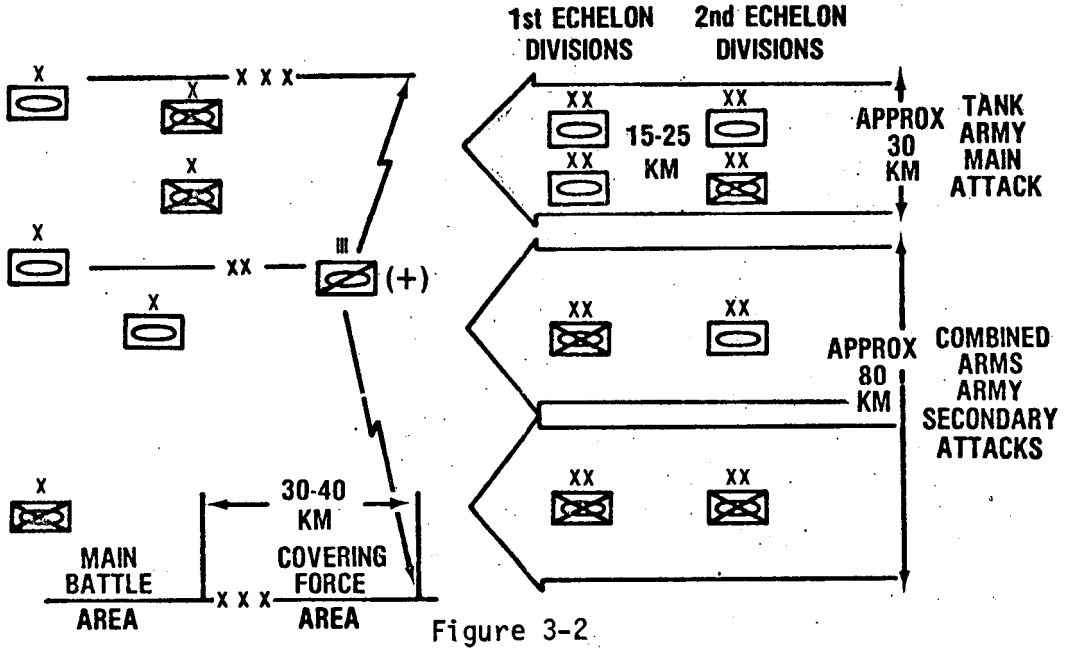


Figure 3-2

Shifting focus from theater level to a U.S. Corps sector faced with one of the main attacks, there may be two Pact tank or combined arms armies disposed as shown above. The tank army conducting the main attack would be concentrated on a narrow front, in deep echelon. The U.S. Corps in the defense, two divisions and an armored cavalry regiment, would deploy a heavy covering force forward of the main battle area (MBA). The covering force -- a heavily reinforced cavalry regiment spread across the corps sector -- is no match for the heavier enemy force.

3.8 The Active Defense:

- COVERING FORCE MISSION
  - REVEAL MAIN ATTACK
  - GAIN TIME
  - DIVEST AIR DEFENSES
  - DECEIVE ENEMY
- MAIN BATTLE FORCE MISSION
  - DECISIVE BATTLE
  - DESTROY ENEMY

The covering force is strong enough to accomplish four important tasks:

- First, force the enemy into revealing the strength, location, and general direction of his main attack or attacks; and force early commitment of his main attack echelons against the covering force.

- Second, gain time so that the corps commander can concentrate his combat power in the main battle area to meet the main attack.

- Third, divest the enemy of his air defense umbrella, or at least require the enemy to displace his air defenses before attacking the MBA, and

- Fourth, deceive the enemy as to the composition and location of friendly forces, especially those in the MBA.

Behind the covering force lies the area in which the main battle will be fought. It is the mission of the force in the MBA to engage the enemy in decisive battle and destroy him. The overall system of defense is active, with commanders at every level economizing forces in less threatened areas to concentrate against the main attack. The concept of active defense is to wear down the attacker by confronting him continuously with strong elements fighting from mutually supporting and successive battle positions.

3.9 Defensive Operations in the Division Sector:

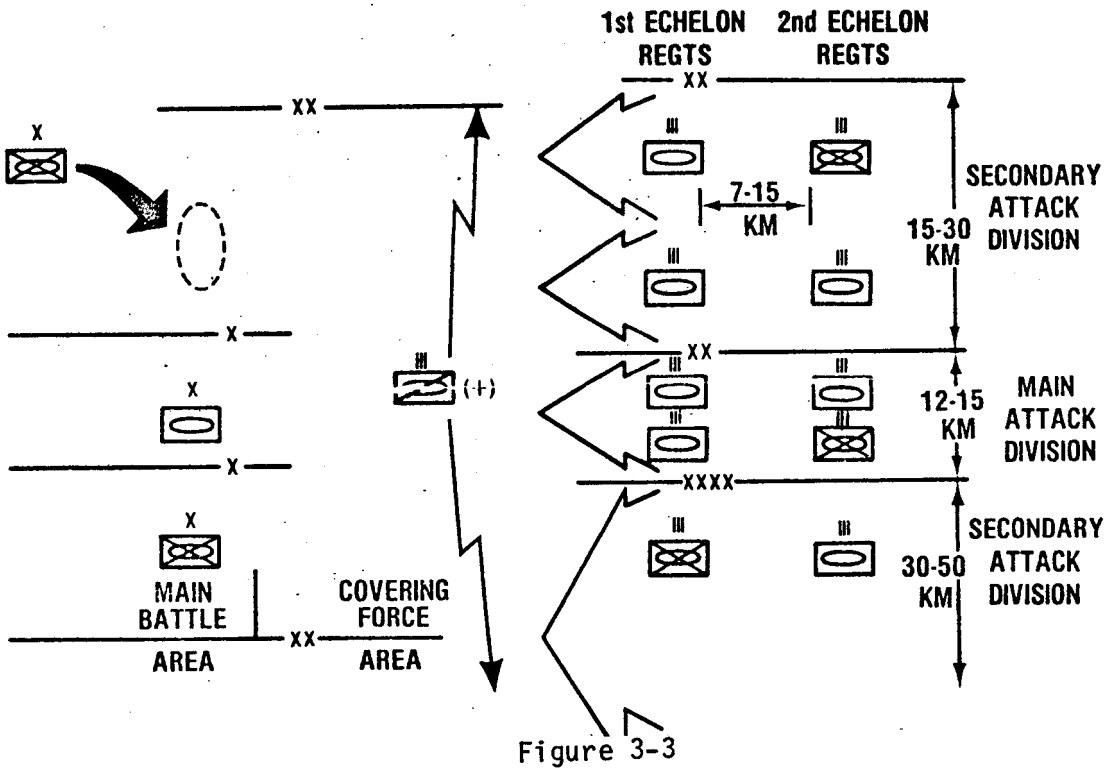


Figure 3-3

The situation in the division sector is similar to that at corps level, on a lesser scale. In the enemy main attack division, regiments are concentrated on a very narrow front. If the Division Commander is provided with accurate and timely information from national and service intelligence sources, the enemy will not find gaps or weakly defended areas when he reaches the MBA. He will be forced to adopt the breakthrough tactic.

NOTE: Warsaw Pact regiments have been selected as the basic building blocks for illustrating the Red Ground portion of the concept because the regiment represents a tactical entity of considerable combat power -- aproximately 120 armored fighting vehicles. There is no intent to task friendly strike pilots with identifying and separating out enemy regiments on the battlefield. It is the job of intelligence and command and control to find the correct targets and direct strike flights to them.

3.10 Initial Contact:

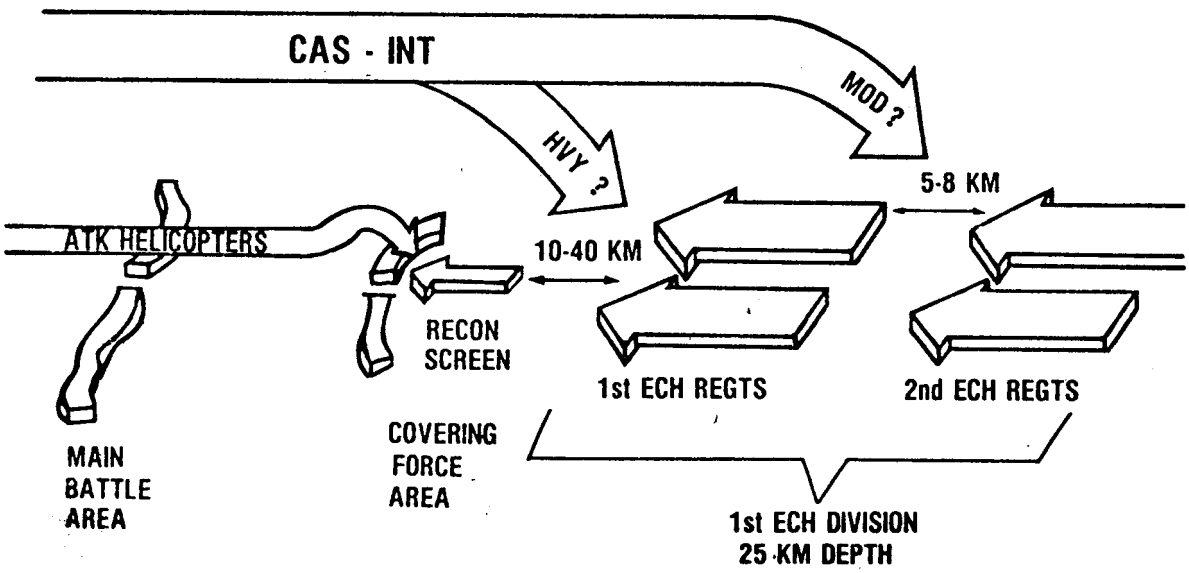


Figure 3-4

Figure 3-4 is the first of a series of conceptual snapshots illustrating events in stop-action. The snapshot depicts the initial contact between the Pact reconnaissance screen -- a battalion size force -- and elements of the covering force. Main ground force engagement has not occurred. The lead regiments of the Pact first echelon division are some distance behind.

The covering force should require little close air support in this initial situation. Attack helicopters can deal with points of pressure. At this stage, the two most critical threats to the defending division in the MBA are the first and second echelon regiments in that order. Therefore, a heavy level of TACAIR effort is employed against the first echelon regiments, and a lesser, but substantial effort is committed against the second echelon. The weights shown represent a subjective estimate of how available air-ground attack and defense suppression assets might be distributed in this division sector. Exact values are not currently known; thus, the weights are depicted with question marks.

3.11 Closure of Leading Regiments:

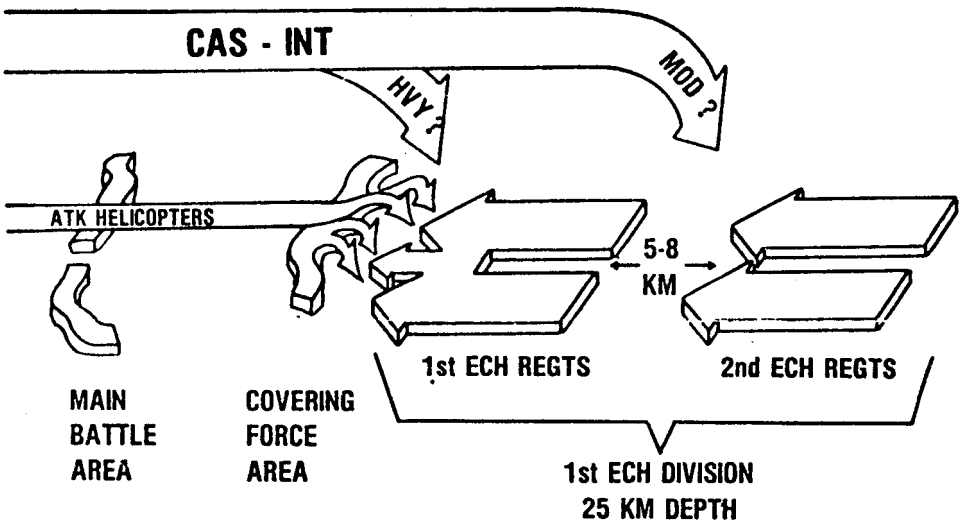


Figure 3-5

As the Pact leading regiments close with the covering force, heavy TACAIR pressure is continued. Meanwhile, friendly ground forces have begun to engage the enemy first echelon, first with artillery fire and then as they draw closer, with anti-tank guided missiles (ATGM), tank gun fire, and attack helicopters.

3.12 Covering Force Delay:

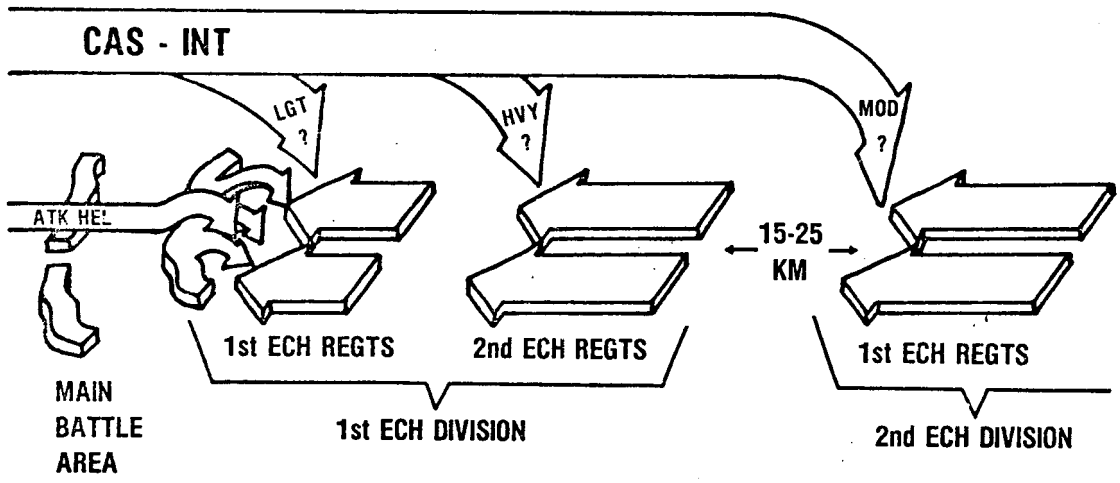


Figure 3-6

As the first echelon regiments engage the covering force, the intensity of Army firepower increases. This, coupled with the damage inflicted by TACAIR from detection to closure should free some TACAIR for redistribution to the second echelon regiments, Close air support pressure continues to be maintained against the lead regiments. In addition, offensive air attacks must be mounted against the lead regiments of the second echelon divisions. The objective of these attacks is to slow or prohibit the commitment of second echelon divisions to the MBA.

- THE COVERING FORCE DEFENDS

Covering Force squadrons and battalions fight just as would similar units in the main battle area -- but not to the point of decisive engagement. They must survive to fight as part of the force in the MBA. But the covering force must offer determined resistance to force the enemy to deploy his main forces, thereby slowing his momentum. As enemy pressure continues to mount, elements of the covering force begin to delay rearward maintaining contact and providing resistance.

3.13 Engagement -- Main Battle Area:

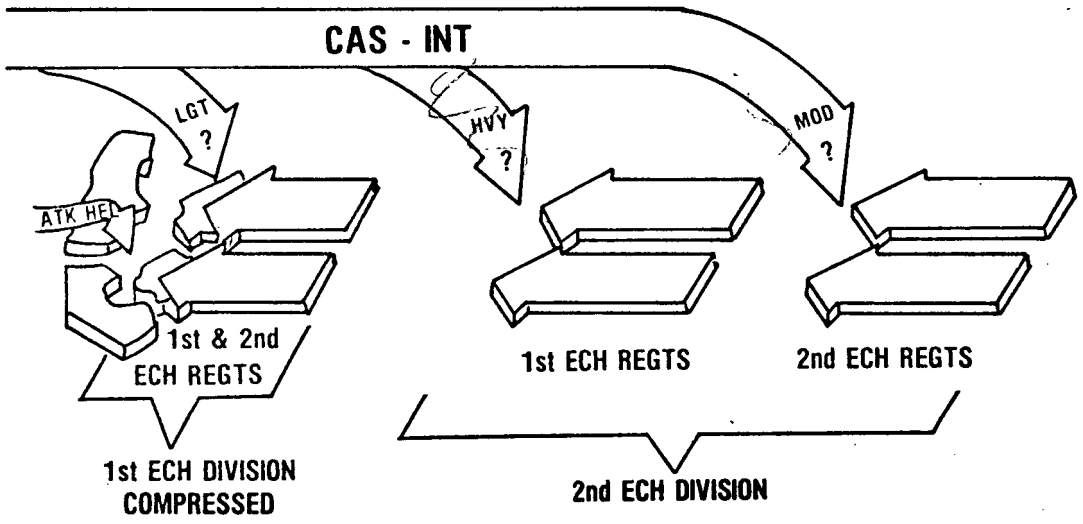


Figure 3-7

Figure 3-7 depicts the action as elements of the covering force have completed their delay and deployed in the MBA. The first and second echelon regiments of the lead divisions are now engaging friendly elements in the MBA. Assumptions underlying this snapshot are (1) the enemy main attack has been identified, (2) friendly forces have been deployed to proper defensive positions, and (3) the requisite level of damage to the first echelon enemy division has occurred. This requisite level of damage must be translated into a ratio of enemy versus friendly ground combat power at the critical times and places. As a rule of thumb, U.S. ground forces can defend and win against up to a three to one ratio. This ratio can pulse higher, but not for long.

Expectations are that a U.S. division in the MBA may be opposed by up to five tank and/or motorized rifle divisions. Thus the U.S. division, with about 350 tanks, may be opposed by approximately 1540 tanks. These comparisons begin to establish the level of attrition that will be necessary before the enemy reaches the MBA, or less desirably, after he gets there.

If the above conditions have been met, distribution of TACAIR air-to-ground assets will be similar to the preceding snapshot -- light in the MBA, heavy on the lead regiments of the second echelon division, and substantial on the second echelon regiments of that division.

3.14 Redistribution of Effort:

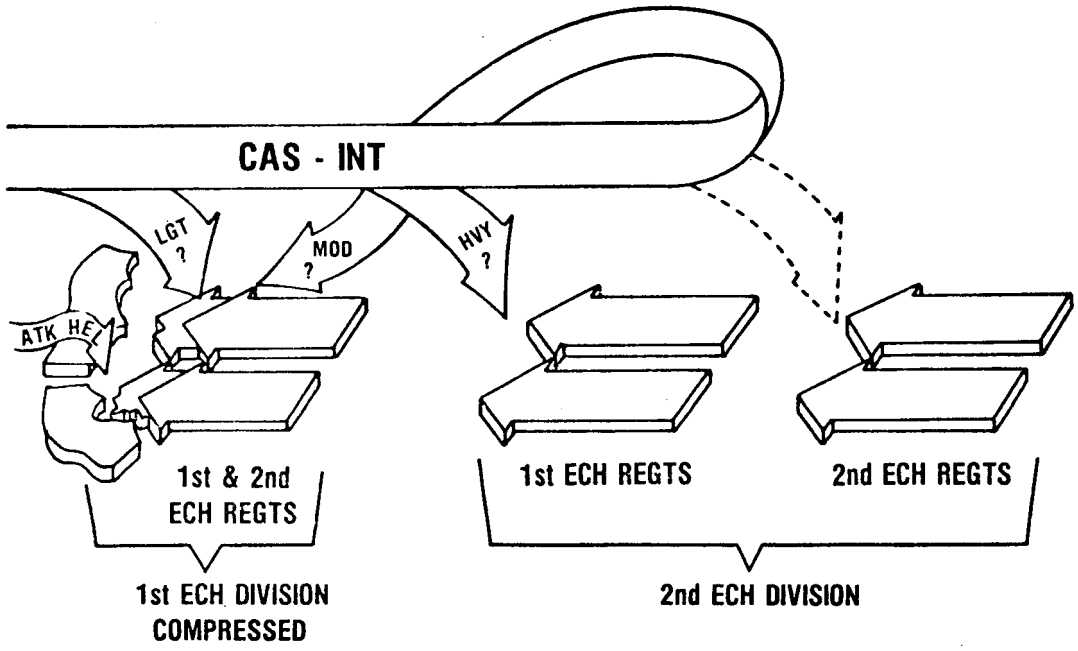


FIGURE 3.8

If the U.S. ground commander has not been fully successful in concentrating his forces to meet the main enemy thrust, a substantially higher level of CAS will be required. In this case, the TACAIR effort on the less critical targets would be reduced and redistributed where it is needed. Such redistribution demands a great deal of flexibility in command and control. Moreover, Army and Air Force command and control systems must interact to such a degree that both services have the same awareness of events at the line of contact and deeper.

Figure 3-8 shows the problem in depth on a single axis, but the same principles apply to redistribution of effort to lateral problem areas in the vicinity of secondary attacks, if necessary. Redistribution may be preplanned well beforehand or take the form of a diversion of airborne attack aircraft.

3.15 Breakthrough:

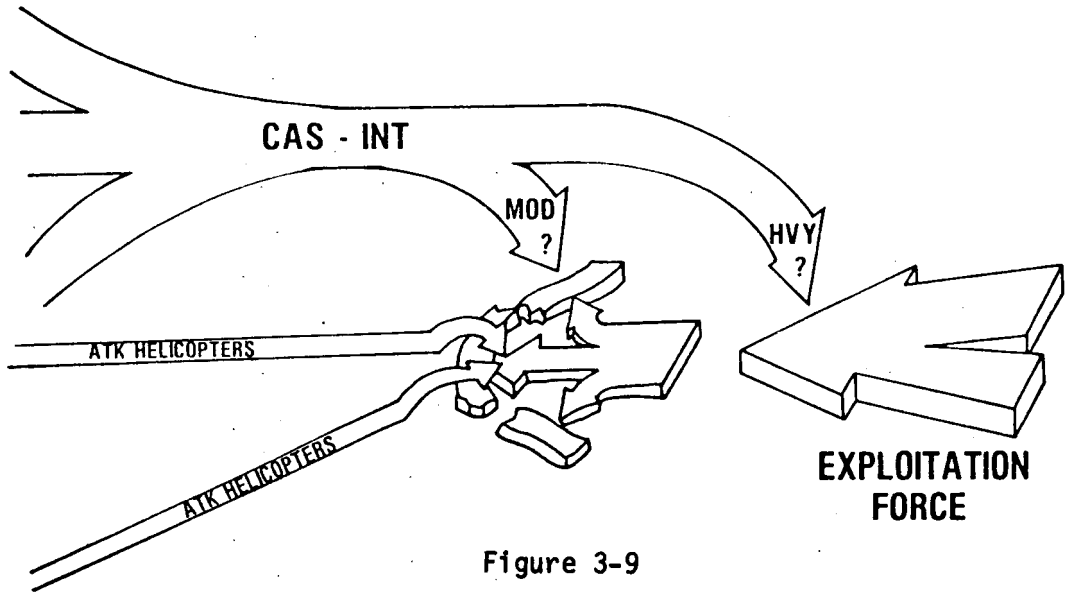


Figure 3-9

The final snapshot deals with a successful Pact breakthrough -- a dangerous and not unlikely situation. In order to mass sufficient combat power at the critical time and place, the ground commander will have to draw forces from elsewhere in his sector. This involves risk.

The ground commander must draw units from where he can find them without jeopardizing the defense against the main attack.

- Combat units in reserve and those in unthreatened areas will be drawn in to halt the breakthrough.

- Rear echelon elements must be ready to defend themselves.

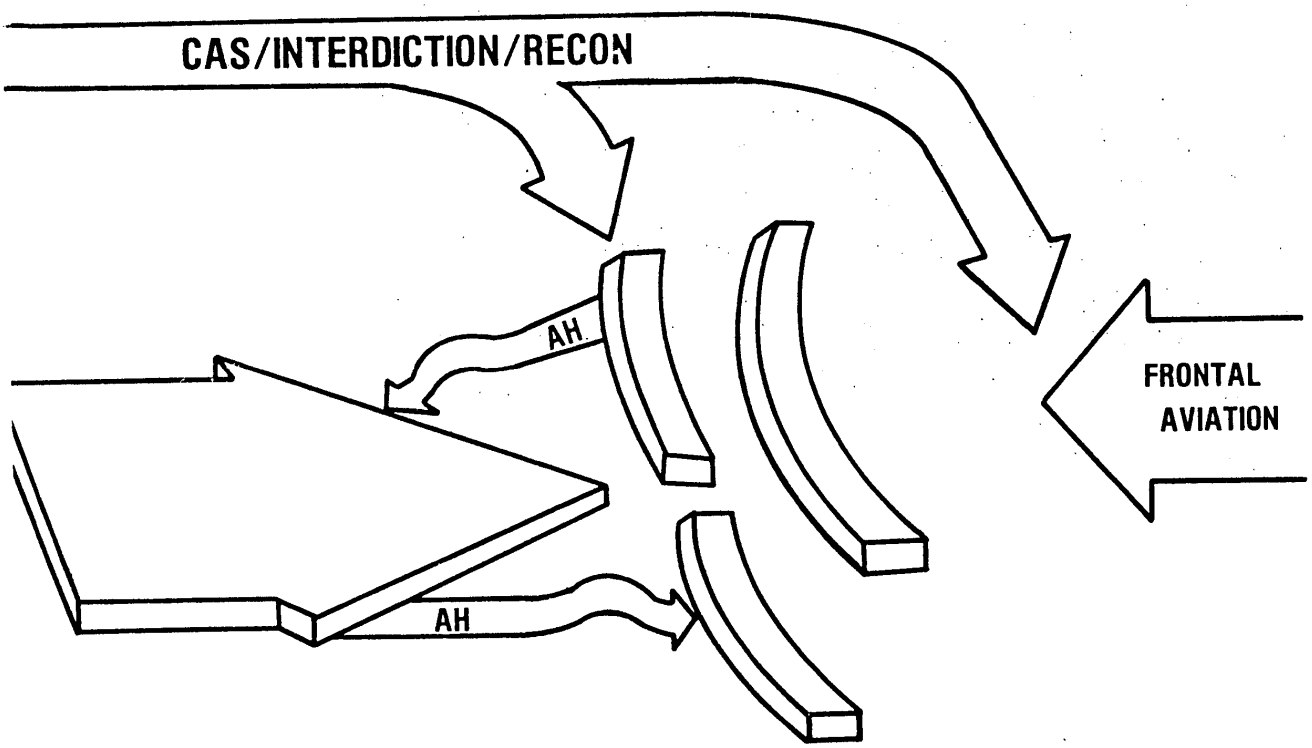
- A heavy concentration of TACAIR and attack helicopters will be required to cope with the threat.

Figure 3-9 shows the heaviest TACAIR effort against the exploitation forces on the presumption that the breakthrough units have a lesser combat effectiveness due to attrition, fatigue, and a reduced level of ammunition and fuel.

3.16 Defensive Concept Summarized:

- WEIGHT OF TACAIR EFFORT PLACED ON NEAREST MAIN FORCE NOT YET ENGAGED -- PRESSURE MAINTAINED UNTIL CLOSURE.
- WHEN ARMY ENGAGES ENEMY FORCES, WEIGHT OF TACAIR IS REDISTRIBUTED AGAINST NEXT FORCE IN ECHELON AND FOLLOW-ON FORCES.
- INCREASES IN CAS REQUIREMENTS SATISFIED BY DRAWING DOWN LEVEL OF EFFORT ON LESS CRITICAL TARGETS.
- DEMANDS ARMY-AIR FORCE TEAMWORK AND FLEXIBILITY OF COMMAND/CONTROL.

OFFENSIVE AIR-LAND BATTLE



CHAPTER 4

THE OFFENSIVE AIR-LAND BATTLE

4.1 Objectives: After NATO forces win the first defensive battle, they may find themselves in a posture to take offensive action for one -- or more -- of several purposes, for example:

- To regain lost allied territory
- To relieve pressure on some sector of the FEBA
- Or, more generally, to destroy enemy forces, secure terrain, destroy enemy will, deceive and divert, or develop intelligence.

4.2 Requirements: The offensive Air-Land Battle has several parallels with its defensive counterpart.

- See the Battlefield
- Concentrate Combat Power
- Fight as a Team
- Win

Air and land force interdependence continues into the offensive. The basic requirements of the Air-Land Battle pertain: See the battlefield in order to select the most logical axis, or axes, of attack; concentrate Army and Air Force combat power; and fight as a team.

The purpose of force concentration in the offensive sense is to achieve sufficient force ratios at selected points to break the enemy defense. In this connection, TACAIR has a distinct advantage through its capability to rapidly concentrate and deliver firepower in support of the ground commander at the critical points and times.

4.3 Offensive Syllogism: Like its defensive counterpart, the offensive syllogism is grounded in the principle of force interdependence.

MAJOR PREMISE:	AT POINTS OF MAIN ATTACK, ARMY MUST ACHIEVE A RATIO OF FORCE AGAINST WHICH PACT CANNOT SUCCESSFULLY DEFEND.
MINOR PREMISE:	TACTICAL AIR FORCES CAN APPLY COMBAT POWER AGAINST FULL DEPTH OF PACT GROUND FORCES.
CONCLUSION:	THEREFORE, TACTICAL AIR FORCES CAN ASSIST IN REDUCING PACT GROUND FORCES TO PERMIT SUCCESSFUL OFFENSIVE.

At the points of main attack, the Army must achieve a favorable offense to defense ratio to permit a successful attack. As in the defense, no finite number has as yet been developed, but no attack can be contemplated without at least local superiority in combat power. TACAIR can add weight to the main attack through application of massed firepower to:

- Destroy or suppress artillery, tanks, and anti-tank guided missiles (ATGM).
- Attack enemy reserves and reinforcements -- particularly those beyond range of cannon artillery.
- Detect and engage counter attacks.
- Interdict enemy supplies.

In addition, Air Force reconnaissance and electronic warfare assets interact with Army and Air Force firepower systems to acquire targets and jam enemy communications, guidance control and radar. Moreover, tactical airlift can provide mobile logistic support to fast moving offensive units.

4.4 Soviet Defensive Doctrine:

- Defense in Depth
  - Strong Points
  - Tank-Heavy Reserves
- Security Zone
- Main Defense Belt

applies to postured defenses?

In Soviet tactical doctrine, defense is viewed as a temporary local expedient to consolidate important gains, to cover a withdrawal, to gain time, or to repel an attack and resume the offensive. Defense in-depth, use of strong points, and counterattacks by tank-heavy forces are emphasized.

The Pact organizes its deliberate defense into a security zone and a main defense belt. The security zone delays the attacker by making him deploy before reaching the main defenses. Moreover, forces in the security zone keep the enemy from delivering divisional fires on the main defense zone. In addition, combat outposts in the security zone:

- Protect against surprise attack
- Conduct counter-reconnaissance

- Perform counterbattery operations against enemy artillery fire on the main defense belt

- Deceive the attacker concerning forward elements of the main defense forces

- Keep the attacker from clearing obstacles (mines, etc.)

The main defense belt is normally manned by motorized rifle units. At the division level the defense is organized in two echelons with two motorized rifle regiments forward and one in the second echelon. The tank regiment is normally held under division control to serve as the mobile reserve.

4.5 Movement to Contact:

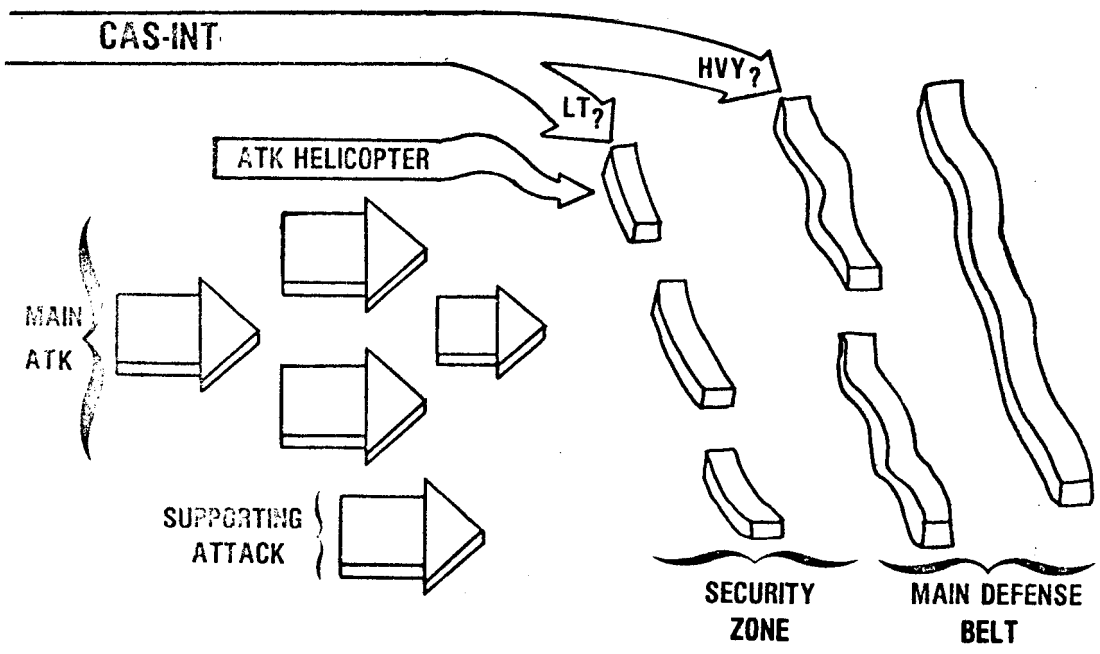


FIGURE 4-1

Again, stop-action will be used to portray a conceptual offensive. The first snapshot (Fig 4-1) shows movement to contact with the advance guard about to engage enemy elements in the security zone. The main bodies are still some distance from engagement.

Main and supporting attacks may be mounted simultaneously. The main attack will be directed toward achieving the primary objective: In this case, a penetration of enemy positions. The supporting attack will deceive the enemy as to where the main attack will come and tie down enemy units in blocking positions.

The covering force should require only minimal CAS to deal with enemy security elements; however, sufficient CAS and other support must be committed to establish and maintain the momentum of the advance. The primary TACAIR effort is directed against the more heavily concentrated enemy force in the first echelon of the defense belt where the attack will develop.

4.6 Hasty Attack:

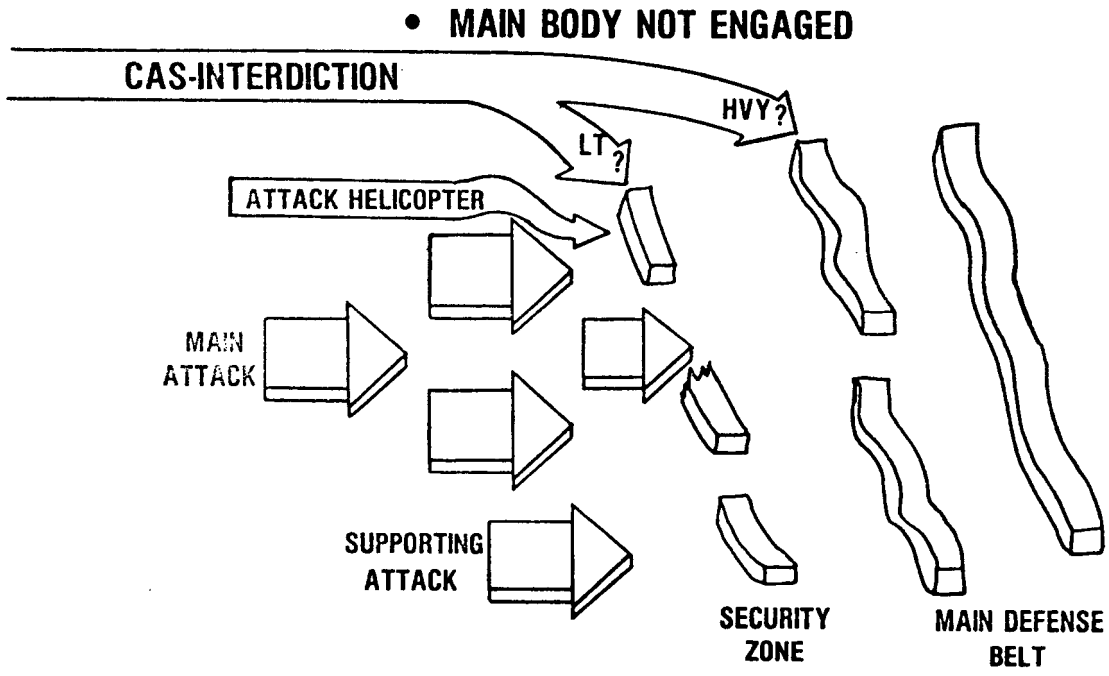


FIGURE 4-2

In the illustration above, the covering force or advance guard has closed with the enemy forces in the security zone. If the ground commander suspects that he is in contact with an inferior force, he may order a hasty attack to further develop the enemy situation and guard against unnecessary delay. By so doing, the commander seeks to maintain momentum and retain the initiative.

In the illustration, the advance guard is conducting a hasty attack against elements of the enemy security screen. Attack helicopters and TACAIR are used to provide the requisite combat power to maintain the momentum of attack without commitment of the main offensive ground force. TACAIR pressure against the first echelon of the enemy's main defense belt continues in order to prepare the way for the main attack.

4.7 Deliberate Attack:

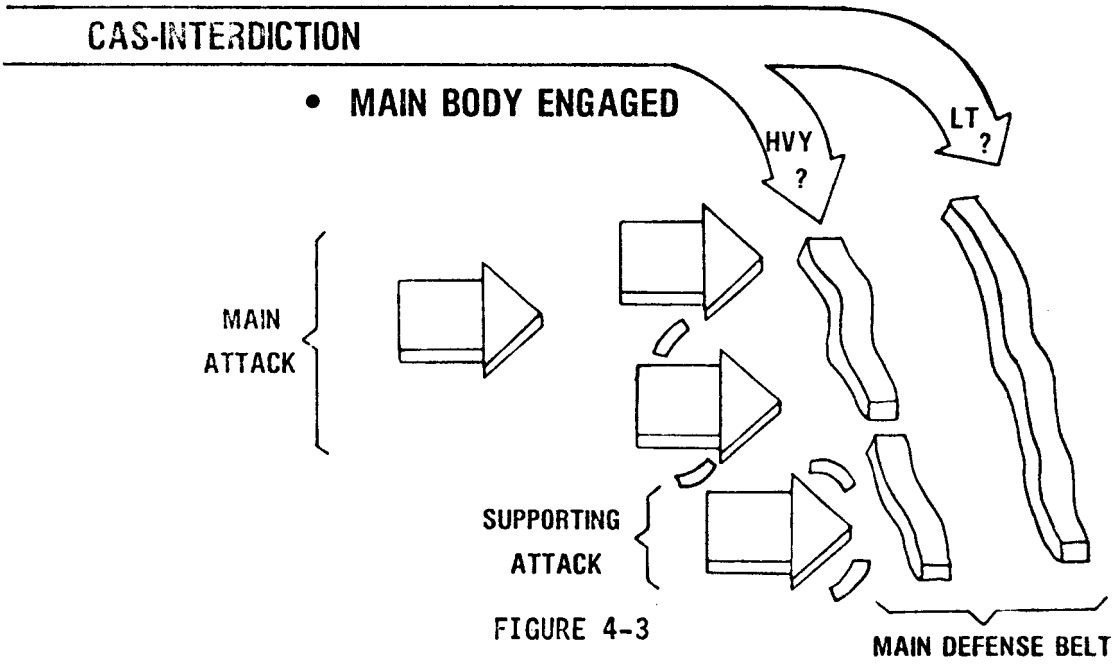


FIGURE 4-3

When the ground commander determines that he has encountered a strong enemy force in prepared positions, he may order a deliberate attack. In the deliberate attack, the main body is employed on a narrow front to achieve the necessary mass and shock effect. TACAIR can be devoted almost exclusively to continued attack on the first echelon of the defense. The flexibility of TACAIR -- along with attack helicopters and field artillery -- permits massing of firepower at the last possible moment. Thus, operational security is preserved and surprise is more likely to be achieved.

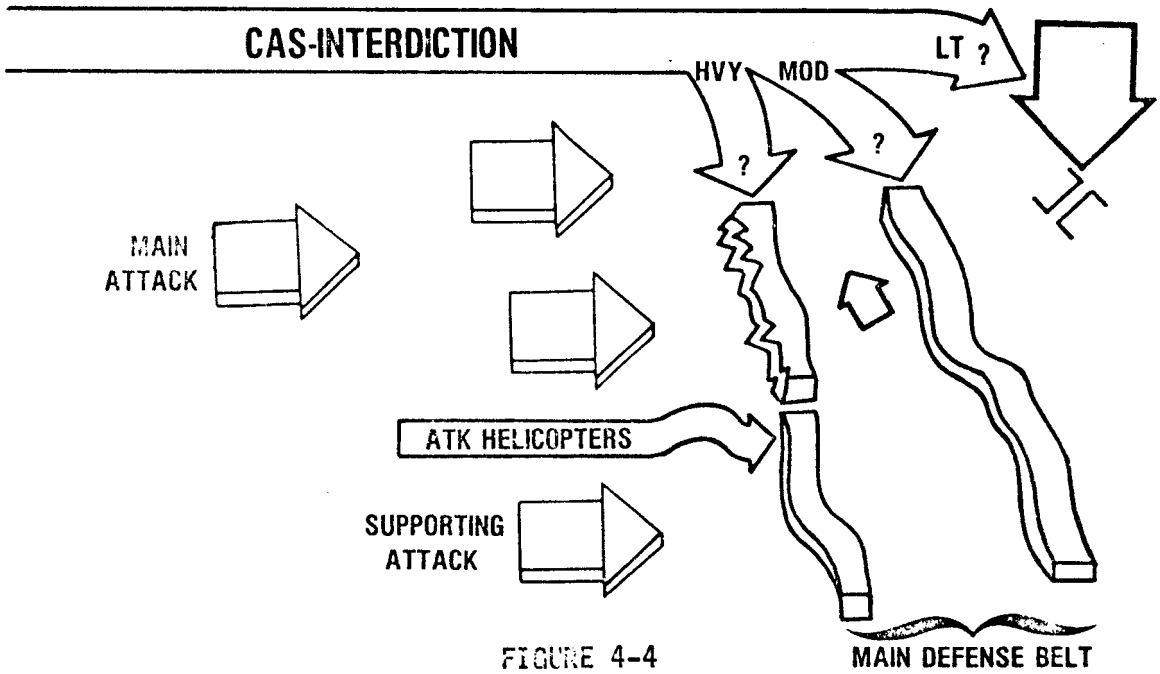


FIGURE 4-4

As the main attack develops and the enemy begins to perceive our objectives, he will begin to take countermeasures. Included may be employment of mobile reserves to reinforce his defense belt in the vicinity of the main attack and lateral transfer of units from less threatened sectors. TACAIR is required to delay the arrival of these fresh troops in time to influence the outcome, and to begin wearing down the second echelon defenses. Accordingly, a shift in TACAIR emphasis to a moderate level of battlefield interdiction is depicted. Substantial pressure in the form of CAS continues to be maintained against the first echelon. The objective, as in the preceding snapshots, is to maintain the momentum of the attack.

4.8 Exploitation:

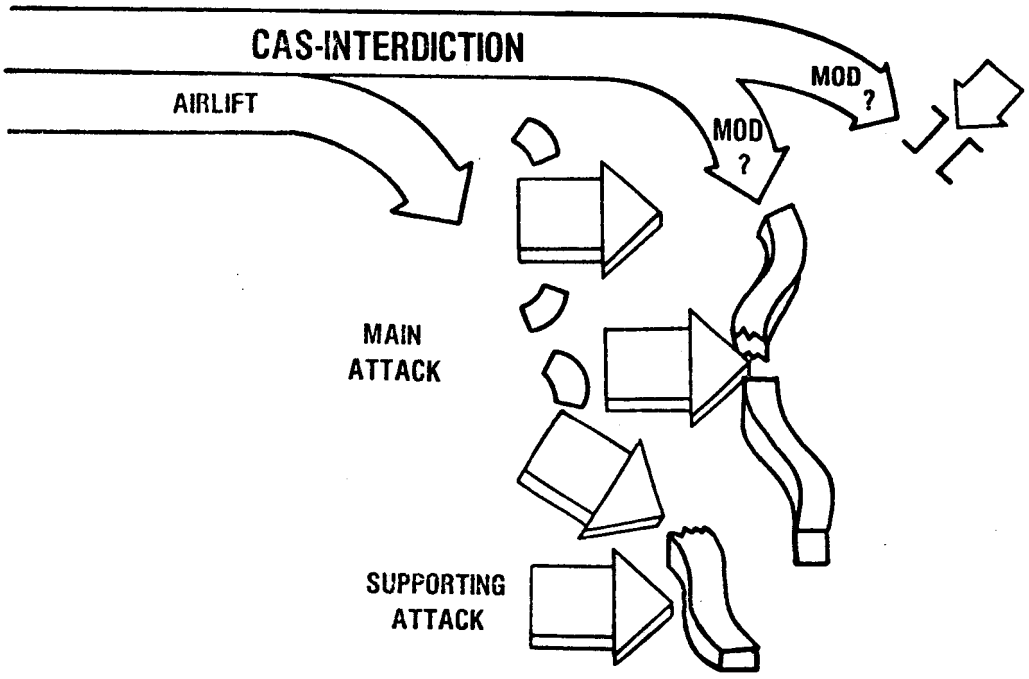


FIGURE 4-5

As the attack progresses, the leading elements of the main force break through the first echelon defenses and move to engage the enemy second echelon. The following element of fresh troops passes through and drives toward objectives deep in the enemy's rear as the attack continues. During exploitation, a moderate level of CAS is required to maintain pressure on engaged enemy units and an increasing concentration of TACAIR is directed against enemy units attempting to reinforce, command and control facilities, combat support, and combat service support elements.

During exploitation, and later during pursuit, the exploitation element will require mobile logistic support to sustain the momentum of the advance. Tactical airlift and helicopters can provide emergency resupply of ammunition, POL, and other critical stores.

4.9 The Pursuit:

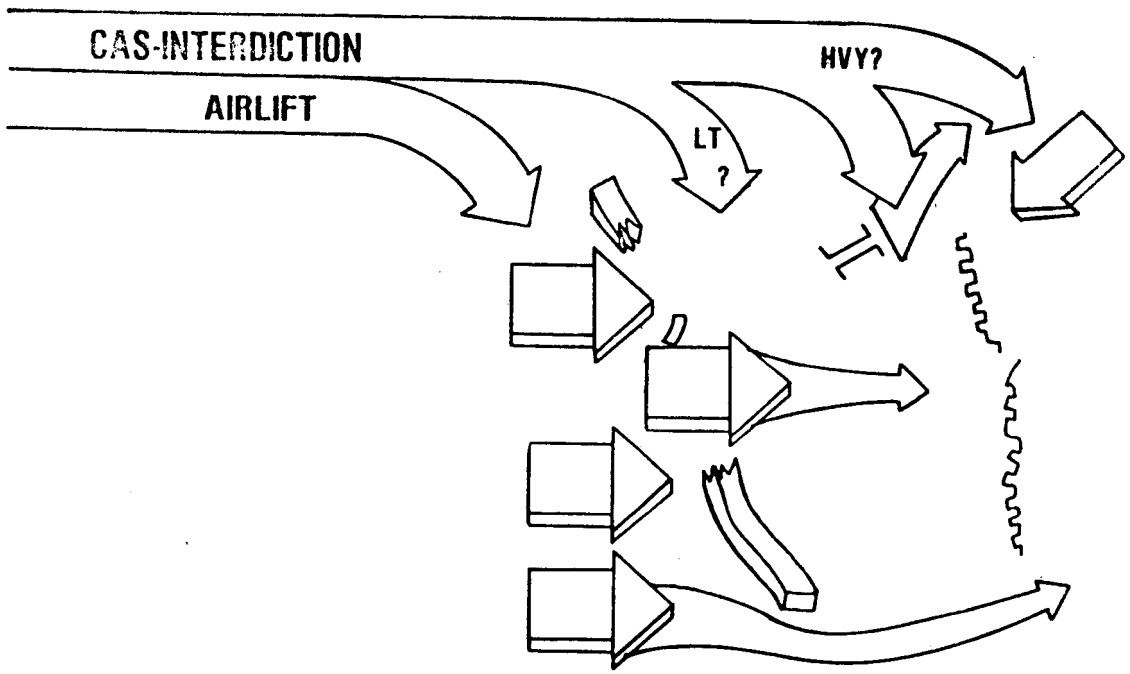


FIGURE 4-6

During the pursuit the ground forces exploitation element maintains pressure on retreating enemy forces while driving toward deeper objectives in the enemy rear. For purposes of illustrating the concept, Fig 4-6 depicts annihilation of enemy units to the north and an envelopment in progress to the south. Here the supporting attack gained momentum when enemy reserve strength was diverted to the main attack area. A prime objective in the pursuit is to cut off retreating Pact forces from their next most logical defensive line.

The emphasis of TACAIR has shifted further into interdiction as the attack has gained momentum. Striking deep objectives, TACAIR assists in delaying the enemy withdrawal and frustrating attempts to establish new defensive zones.

4.10 Offensive Concept Summarized:

- DURING MOVEMENT TO CONTACT, HASTY ATTACK AND INITIAL STAGES OF DELIBERATE ATTACK, FOCUS OF TACAIR EFFORT ON NEAREST MAIN FORCE TO WEIGHT MAIN ATTACK.
- WHEN BREAKTHROUGH ASSURED, TACAIR IS REDISTRIBUTED TO INCLUDE NEXT DEFENSE ECHELON AND ENEMY REINFORCEMENTS -- MOMENTUM MAINTAINED THROUGHOUT.

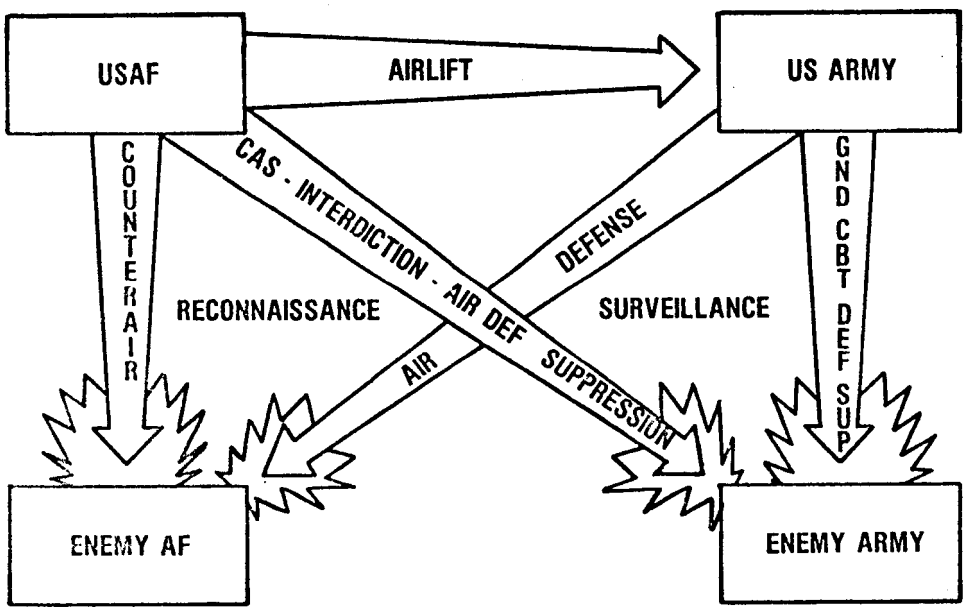
- DURING EXPLOITATION AND PURSUIT, INCREASED TACAIR PRESSURE ON REAR AREA SECURITY, COMMAND AND CONTROL, AND REINFORCEMENTS.

In offensive action, use TACAIR to weight the main attack, first against the nearest main enemy defensive force and critical targets beyond the range of Army firepower. During later stages of the attack -- providing momentum can be maintained -- TACAIR may be shifted to succeeding defensive echelons or reinforcing elements. During exploitation and pursuit, TACAIR is used to disrupt enemy C^2, deny battlefield mobility, and interdict reinforcements. As in the defense, the required degree of sophistication in combat information exchange and command and control may well exceed current Army and Air Force capabilities.

APPENDIX A

AIR-LAND BATTLE SERVICING SCHEMATIC

Army and Air Force contributions to the Air Land Battle are illustrated below.



- The recipient of CAS and Battlefield Interdiction is the enemy army.
- Reconnaissance and surveillance provides the intelligence and combat information to support the other combat functions.
- Rate of arrival of ground targets at the FEBA (arrival rate) is influenced by TACAIR (interdiction) and indirect artillery fire.
- Rate of attrition of ground targets (service rate) is influenced by direct fires and TACAIR (CAS).

APPENDIX B

GLOSSARY

Air Defense: All defensive measures designed to destroy attacking enemy aircraft or missiles in the earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (JCS Pub 1)

Air Interdiction: Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces, at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (JCS Pub 1)

Battlefield Interdiction: Battlefield interdiction may have a direct effect on surface operations and must be coordinated but not integrated with surface forces' fire and movement.

Close Air Support (CAS): Air attacks against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. (JCS Pub 1)

Counter Air: A United States Air Force term for air operations conducted to attain and maintain a desired degree of air superiority by the destruction or neutralization of enemy forces. Both air offensive and air defensive actions are involved. The former range throughout enemy territory and are generally conducted at the initiative of the friendly forces. The latter are conducted near to or over friendly territory and are generally reactive to the initiative of the enemy air forces. (JCS Pub 1)

Forward Edge of the Battle Area (FEBA): The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units. (JCS Pub 1)

TACAIR: Tactical Air as used herein is a generic term to include CAS, air interdiction, counter air, tactical reconnaissance, tactical airlift, and special operations.

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JOINT

MISSION ELEMENT NEED STATEMENT (JMENS)

FOR

TACTICAL AIR RECONNAISSANCE

AND

BATTLEFIELD SURVEILLANCE (U)

22 December 1977

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JOINT
MISSION ELEMENT NEED STATEMENT (JMENS)
FOR
TACTICAL AIR RECONNAISSANCE
AND
BATTLEFIELD SURVEILLANCE

I. (C) MISSION

A. Mission Area: This JMENS relates to DOD Mission Areas 124, Tactical Air Reconnaissance and 111, Battlefield Surveillance. Mutual needs and capabilities dictate the indivisible nature of Tactical Air Reconnaissance and Battlefield Surveillance. DOD Directive 5100.1 and JCS Pub 2 designate the Army and the Air Force to provide organizations capable of furnishing adequate, timely and reliable intelligence. The primary objective of the Tactical Air Reconnaissance and Battlefield Surveillance Mission Areas is to detect, identify and locate enemy forces in order to engage targets and manage the air-land battle.

B. Mission Element Need Task: The task includes the collection and dissemination of near real time (NRT) information as well as the initial processing and interpretation of imaged or recorded data. This task supports the mission need of providing selective, critical information in useful formats to permit ground and air commanders to be at the right place at the right time with the right amount of firepower. Further analysis, fusion and dissemination are also urgent tasks but are not addressed in this JMENS. Specific capabilities needed to perform this task are:

1. Timely coverage and reporting of critical targets/events.

2. Sufficient location accuracy to permit delivery of air and/or ground weapons.

3. Sufficient detail to permit identification/recognition of targets as a basis for planning and execution.

4. Low vulnerability to enemy countermeasures.

5. Minimum degradation during all-weather, day/night conditions.

II. THREAT: There are two aspects to the threat which must be addressed: the target threat against which the collection effort is directed, and the denial or physical threat to these collection activities. (U)

A. Target Threat

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1. The most severe threat situation exists within the Central Region of NATO where the Warsaw Pact Forces are highly mobile and numerically superior. However, similar threat considerations are applicable in varying degrees to other areas of the world.

2. In place ground forces within the Central Region are comprised of 58 Soviet/Warsaw Pact (WP) divisions plus combat and service support units. An additional 30 to 32 Soviet divisions, located in the three Western Districts of the USSR, are available for reinforcement. Air forces are comprised of defensive and offensive units in the forward area, tactical reinforcements from the Western USSR, and Long Range Aviation (LRA) medium bombers. Over 4200 fixed wing aircraft and 500 helicopters are immediately available. These aircraft can operate from some 62 main operating bases and approximately 200 potential alternate airfields.

3. The Soviets utilize the principles of mass and maneuver to provide a high probability of success. Soviet planning calls for a daily advance rate of approximately 30-50 kilometers (KM) in a conventional war. Doctrine calls for their forces to be equipped and trained to fight during day, night, and all-weather conditions. Tactical Air Armies will provide support to ground forces. To employ SIGINT, ECM and intrusion capabilities to the fullest, the Soviets have developed a concept of operations termed Radioelectronic Combat (REC) to integrate electronic warfare and physical resources to deny the enemy use of the electronic environment. The objective of REC is to disrupt or destroy approximately 60% of our electronic communications capability . Air defense for ground forces is provided by manned aircraft and a highly sophisticated, mobile and overlapping system of surface-to-air missiles (SAM) and anti-aircraft artillery (AAA) weapons. Soviet doctrine calls for an entire second echelon division or army to be introduced into the battle to remedy a problem or exploit a success.

B. ( ) Denial Threat (U)

1. The enroute and terminal threat to collection platforms will consist of SAMs and AAA weapons which provide the WP with coverage up to 90,000 feet. AAA weapons will pose a threat primarily at low to medium altitudes. Some air defense weapons, such as the mobile ZSU-23-4, have been designed to operate in a complex ECM environment.

2. Interceptor aircraft include MIG 21/23 FISHBEDS/ FLOGGERS which have capabilities to Mach 2.3 and 67,000 feet. A limited lookdown, shoot-down capability is currently deployed in the FLOGGER B and this capability is expected to be well developed by the early 1980s. High performance, high altitude intercept capability is provided by the SU-15 FLAGON and MIG-25 FOXBAT which provide performance to Mach 2.8 and 79,000 feet. The Soviets have the capability to use satellites to intercept and destroy other satellites. This capability is expected to improve significantly by 1993.

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3. [redacted] In addition to the direct attack/destruction of airborne and ground segments of our reconnaissance/surveillance systems, Soviet doctrine calls for the use of countermeasures such as electronic spoofing/jamming, camouflage, decoys, smoke and chaff, to deny/delay the timely detection of targets.

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C. [redacted] Future Improvements: Continued significant improvements are expected in the quality of weapons systems. Operating ranges of vehicles are expected to increase. Also, improved capability for operations during limited visibility and further automation of command and control functions are expected. In addition to traditional weapons, we can expect the development and possible deployment of high power laser and particle beam weapons as well as environmental manipulation systems by 1994. The following tables project ground and air force structures through 1993:

TABLE 1

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[redacted] Air/Ground Forces/Equipment Facing Central Region

	1977	1983	1993
Divisions	90	92	92
Tanks	23,100	24,150	25,000
Artillery	5,570	9,500	9,940
BMPs	31,200	31,950	33,700
SAMs (Self-Propelled)	2,300	3,400	3,700
ZSU-23-4	990	1,120	1,250
Tactical Aircraft	3,635	3,545	3,535
Med Bombers	560	540	520

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TABLE 2

(S/NOFORN) Projected Soviet Fighter Aircraft Development

Designation	IOC	Maximum Speed at SL/Altitude (Knots)	Combat Ceiling (FT)	Combat Radius W/Int Fuel (NM)	Armament
Improved FLOGGER	1980	760/1,350	67,000	745	2-4 AA-7A/7B 2xAA-8 1x23mm gun
New Interceptor	1981	640/1,600.	72,600	700	4-6 AAx-9
Air Superiority Fighter (Counter to F-15/16)	1981-1983	800/1,300	68,700	400	2xAAMs and 23mm guns
Advanced VSTOL Fighter	1982-1984	600/1,150	50,600	650	30mm guns

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X1 III. [redacted] EXISTING AND PLANNED CAPABILITIES THAT CONTRIBUTE TO THE RECONNAISSANCE/SURVEILLANCE MISSION ELEMENT NEED TASK [redacted]

X1 A. [redacted] National/Strategic reconnaissance systems collect information (SIGINT, RADINT, and PHOTINT) potentially useful to tactical commanders. Extensive efforts are underway to develop procedures and equipment allowing more rapid integration of data derived from national systems into the tactical system. A significant factor is the alignment of national and tactical priorities.

X1 B. [redacted] Other free world countries currently possess tactical reconnaissance aircraft that are primarily limited to visual, photographic and infrared capabilities. West Germany possesses a limited NRT side looking airborne radar (SLAR) capability, however, these systems are not currently committed to NATO. Other friendly nations (i.e., Israel, Japan) will also possess SLAR systems within the time frame addressed by this document. Allied forces possess ground surveillance systems functionally comparable to those employed by U.S. ground forces.

X1 C. [redacted] Existing U.S. tactical reconnaissance/surveillance aircraft/RPVs are primarily equipped with non-real-time sensors with only limited all-weather capability. Current all-weather tactical airborne imaging capability is limited to a small number of SLAR equipped Mohawk and RF-4 aircraft providing moving and fixed target information respectively. All SLAR Mohawks and three RF-4s are equipped with an inflight image transmission system. Mohawk and RF-4 aircraft are also equipped with infrared sensors which provide some night capability. A limited number of RF-4s and Mohawks equipped with TEREC and Quick Look have the all-weather capability to detect, identify and locate selected electronic emitters in near-real-time. C-130 aircraft equipped with COMFY LEVI vans have a NRT capability to intercept enemy voice transmissions. Army RV-21 Guard Rail equipped aircraft have a similar capability plus direction finding equipment. Ground surveillance systems are organized and employed to provide timely information. They include a mixture of night vision devices, radar, remote sensors and COMINT and ELINT collectors. These systems are directed, for the most part, toward enemy activity close to the FEBA and provide time sensitive information particularly useful in targeting.

X1 D. [redacted] Numerous efforts are currently underway to upgrade our reconnaissance capabilities, particularly for periods of poor weather/light conditions. Programmed improvements approved for production will noticeably increase overall capability in the near term 1984, however, these improvements will not keep pace with the projected threat increases 1984-1994. Several proposed systems currently under development have the potential to make significant contributions toward the 1984 and 1994 capabilities, but do not by themselves, adequately correct all projected shortfalls.

X1 IV. [redacted] ASSESSMENT

X1 A. [redacted] Deficiencies and Vulnerabilities of Existing and Programmed Capabilities (U)

25X1

1. [redacted] Information Characteristics. Tactical reconnaissance/surveillance should concentrate on those items of combat intelligence which are needed and will be used by the tactical commander. This need must be central to all system acquisition and tasking considerations. The current and projected threat dictates an increased requirement for high quality, timely information. Information must be tailored to user needs, not to specific collection system capabilities. These needs are expressed in the following terms:

25X1 a. [redacted] Area Coverage - foot print or segment of the threat surveyed by a system(s).

25X1 b. [redacted] Frequency - time between collection efforts.

25X1 c. [redacted] Timeliness - time from imaging, intercepting or recognition to receipt of useable information by the principle user.

25X1 d. [redacted] Detail - degree of description, driven by information use.

25X1 e. [redacted] Location Accuracy - degree of accuracy, driven by information use.

25X1 2. [redacted] Area Coverage. Enemy forces have made significant improvements in their battlefield mobility and continue to strengthen their frontal aviation and Long Range Aviation capabilities to project firepower against NATO resources. As the momentum with which the threat can bring forces to bear increases, our requirement to cover large areas in all weather will become correspondingly more critical. High altitude/space photographic systems, while yielding large area coverage, are at the mercy of objective area weather and possess only a daylight capability. Low altitude photographic/electro-optical (EO) systems yield only a snapshot look at selected objectives and sustain significant degradation during adverse weather conditions. Also these platforms lack the penetration range to fully support deep-strike operations. SLAR systems provide large area coverage but are susceptible to enemy ECM. Tactical SLAR imagery is often degraded by the need for low altitude penetration tactics in face of the denial threat. COMINT/ELINT systems provide wide area coverage, but collection is limited to the emitting threat.

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[redacted]

3. [redacted] Frequency. The speed and lethality with which Warsaw Pact can bring second echelon forces to bear at the FEBA requires continuous surveillance over likely assembly areas. High altitude/space photographic systems can provide coverage at predetermined, rather inflexible intervals. This restriction combined with weather constraints limit utility in the immediate battle area. While relatively large numbers of U.S./allied low altitude photographic platforms are currently available, their effectiveness is diminished by lack of adverse weather and night capabilities. As mentioned in Section III, U.S. and allied tactical SLAR resources are severly limited, particularly those with NRT capability. High altitude

strategic radar imaging systems have a significant potential to provide imagery of less time sensitive targets but are also limited in numbers. A combination of strategic, national and tactical COMINT and ELINT systems are capable of providing a continuous watch over segments of the emitting threat.

X1 4. [redacted] Timeliness. Lack of this quality can totally negate information usefulness. Enemy intentions must be discovered in time for effective reaction by friendly forces. Current national/strategic photographic systems require relatively complex tasking and lengthy dissemination times that limit their use in influencing events in the immediate battle area. Fixed target SLAR imagery demands time consuming interpretation whether data-linked or ground processed. Cues from other sensors and change detection techniques can significantly reduce the time required for this task. MTI radars provide rapid and accurate activity information to commanders by data links but are susceptible to enemy radioelectronic combat operations. U.S. and allied COMINT and ELINT systems have significant capabilities against the threat but disciplined countermeasure procedures could reduce product timeliness and/or validity. Timeliness is the most critical information characteristic.

X1 5. [redacted] Detail. Adverse force ratios dictate that allied commanders adhere to the principle of economy of force. Accordingly, the collection process must permit the identification of the enemy's critical nodes. Currently no single type of sensor can provide a reasonably complete picture of battlefield activity. Confidence levels in single source reconnaissance/surveillance information vary significantly with the type of data collected with day photo at one end of the spectrum and unsupported COMINT at the other. Fusion enhances credence but, as currently practiced, decreases timeliness. Often an inverse relationship exists between requirements for detail and timeliness; for example, timeliness is critical at the FEBA while detailed, high confidence data is essential to decisions concerning deep-strike efforts. Some national/strategic photographic systems can provide excellent detail but are constrained by weather and night as previously mentioned. Low altitude platforms can also provide required detail day or night but are also hindered by adverse weather and face a significant denial threat as outlined in Section II. SLAR provides our only all-weather imaging system but insufficient detail requires that it be combined with other sensor data to extract useful information. COMINT and ELINT systems, while valuable as cueing and management tools lack detail and can only collect against a portion of the threat.

X1 6. [redacted] Locational Accuracy. Soviet/WP doctrine calls for maximum operations during night and periods of poor visibility. Their forces are equipped and trained to honor this doctrinal objective. The U.S. possesses a limited all-weather strike capability that extends beyond the range of ground force indirect fire. To support this capability we require reconnaissance/surveillance systems that yield location accuracies less than 50 meters. Only imaging and developmental precision emitter

location systems will currently deliver this accuracy. This deficiency becomes more critical beyond the range of stand-off SLAR systems when high risk penetration operations must be contemplated to support all-weather strikes.

X1 7. [redacted] Critical Deficiencies. Deficiencies exist throughout the collection [redacted] initial reporting task. The most crucial deficiencies (Figure 1) are prioritized below in relationship to the specific battlefield area where they exist.

X1 a. [redacted] Timeliness - Our most critical deficiency is our inability to provide [redacted]me-sensitive information concerning the mobile threat for battle management and target nomination purposes, particularly in the area within 150KM of the FEBA. A significant deficiency also exists in our capability to provide timely data concerning activity/status changes in support of strike operations against fixed installations out to 350KM beyond the FEBA.

X1 b. [redacted] Frequency - Another acute deficiency is our inability to provide continuous/near continuous coverage of the mobile threat in support of the management and/or targeting functions within 150KM of the FEBA.

X1 c. [redacted] Location Accuracy - Offensive/defensive options are limited by our [redacted]bility to provide timely, mobile threat locational accuracies sufficient to fully support indirect fire applications in the area 5-150KM beyond the FEBA.

X1 [redacted]ly d. [redacted] Area Coverage - Our inability to adequately "see" the battlefield, particularly in the area from 50 to 150KM behind the FEBA, severely restricts battle management options available to tactical commanders.

X1 EGIB e. [redacted] Detail - While a marginal capability to provide sufficient detail for battle management and strike support purposes currently exists during daylight and most weather conditions, darkness and very poor weather causes this deficiency to become critical. This inadequacy affects both the battle management and targeting functions up to 150KM beyond the FEBA.

B. (C) Technological Opportunity [redacted] 25X1

1. [redacted] Platforms: Technological advances in penetration aids and performance capabilities offer the possibility of improving the effectiveness of existing or advanced manned platforms to counter the denial threat. Spaceborne systems possess significant growth potential in the tactical arena. Advanced RPV/drones can be designed for the optimum mix of survivability, payload and performance. Technology spinoff from the cruise missile programs could have application to the reconnaissance/surveillance mission.

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K1 2. Sensors: Advancing sensor technology can provide enhanced day/night and all-weather target recognition, reliability and counter-countermeasures capabilities. Recent development in narrowband multispectral photographic technology will enhance target detection of camouflaged vehicles. New long range electro-optical sensors can provide data on very low contrast targets which are now undetectable. Advanced Forward Looking Infrared (FLIR) systems using focal plane arrays will have increased sensitivity and be smaller to permit internal installation in either manned or unmanned platforms. Laser detection and ranging (LADAR) systems may provide significantly better resolution and more accurate target range measurements than conventional radar systems. New developments in microwave radiometry may provide an improved adverse weather search capability over forward-looking infrared systems, and the use of new wave length systems (e.g., CONTAD) can provide a foliage penetration capability for the initial detection of tactical sized targets. Improvements in synthetic aperture technology (e.g., ASARS) could enhance the battlefield surveillance capability. Continued development of ground and air time/direction of arrival (TDOA) intercept systems could significantly improve NRT targeting. In summary, sensor technology is available to greatly increase our reconnaissance/surveillance capability.

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K1 3. Reporting: Advances in digital transmission and processing technology will facilitate the NRT exploitation of wide band video imagery and automatic identification of priority targets. The ability to pre-process some data on-board the collection platform will facilitate the selective transmission of data to the ground and reduce data link vulnerability to jamming. Automatic cueing and identification could be improved by using advanced ground digital processing facilities to integrate the multi-collector target data. Current development programs have demonstrated the utility of this type of processing.

K1 C. Obsolescence of Equipment. The aging fleet of manned reconnaissance/surveillance aircraft (RF-4, RA-5, RF-8, OV-1) and AQM-34 L/M RPV/drones may become increasingly difficult to support in the next decade. The previous logistical advantage of high commonality with other weapon systems (F-4, F-8, AQM/BGM-34 series drones) will be greatly reduced as other mission areas are equipped with modern equipment.

K1 V. (C) CONSTRAINTS

K1 A. Development Costs. The program initiation phase will identify development costs to meet the tactical reconnaissance/surveillance critical needs. The final system(s)/solutions(s) to satisfy the need must be both feasible and affordable throughout the entire system's life cycle.

K1 B. Logistics Considerations. Improved capabilities must be supportable and compatible with existing and future logistic concepts. Design configurations should be appropriate to the employment environment and recognize that requirements for system mobility for ground maneuver units and static war headquarters differ considerably. Candidate solutions should have inherent flexibility to permit at least limited operations from multiple austere locations.

X1 C. [ ] NATO Standardization/Commonality. Future U.S. tactical reconnaissance/surveillance systems must be compatible with each other and provide useful information to strike and maneuver elements of both NATO and U.S. forces. Continued emphasis should be directed toward standardization of NATO optical/EO film formats, tasking/reporting procedures and formats, as well as C^3I^2 interoperatiblity. Tactical reconnaissance/surveillance, command and control, and strike forces must train together so that during hostilities they act as a cohesive combat effective unit.

X1 D. [ ] Operational Considerations. (U)

X1 1. [ ] The volume of available data from numerous collectors requires an efficient screening device to filter and sanitize the information to provide it in a useful format to the tactical commanders.

X1 2. [ ] Modernization of existing systems or development of new systems should not create any additional friendly lucrative targets requiring a large scale defensive effort.

X1 E. [ ] Timing of Need. The current deficiency is great and advances in the projected threat (improvement in Soviet capability to operate at night and in poor weather and to move forces at greater speeds over greater distances) will make the need acute in the 1984-94 time period, therefore, it is imperative to attain a Milestone 0 decision in early FY 78, and to achieve some phased capability improvements by 1984.

25X1 VI. [ ] IMPACT OF STAYING WITH PRESENT SYSTEMS. Failure to acquire an improved capability to provide timely, accurate combat information/intelligence will have the following consequences:

25X1 A. [ ] Tactical commanders will be unable to satisfactorily determine the intent of the enemy.

X1 B. [ ] Tactical commanders will be unable to employ their forces against the most productive targets.

X1 C. [ ] Tactical reconnaissance/surveillance systems will remain vulnerable to increasing enemy threats and may experience unacceptable attrition rates in future conflicts.

X1 D. [ ] Tactical reconnaissance/surveillance systems have a limited capabilit[ ] support long range/all-weather tactical strike systems, i.e., F-16, F-111, Tornado, cruise missiles.

X1 E. [ ] The combined effect of these factors could prevent attainment of the common objective--WINNING THE AIR-LAND BATTLE.

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X1 VIII. [redacted] PROGRAM PLAN TO IDENTIFY AND EXPLORE COMPETITIVE ALTERNATE CONCEPTS

X1 A. [redacted] Upon approval of this JMENS, a Joint Army AF Program Office (JLFA) will be activated consisting of both operational and technical personnel.

X1 B. [redacted] The final product prepared by the Joint Program Office will be a draft Decision Coordination Paper (DCP) supporting the Milestone 1 decisions. The DCP will recommend preferred alternatives for demonstration and validation and will include a description of acquisition strategy, a program management structure, a logistics annex, and a test and evaluation master plan. The recommendation made in the DCP will be supported by a detailed and comprehensive analysis of requirements, system descriptions offered by industry and DOD components, threat data and simulations. The analysis of candidate systems will be performed individually and in concert. It will include an operational task effectiveness evaluation. The development of foreign systems and NATO compatibility will also be considered by the Program Office analysis.

X1 VIII. [redacted] RESOURCES. The Program Initiation Phase is planned for completion within 24 months after the approval of this JMENS. This phase is estimated to require an average manning level of 10 manyears of in-house effort. This will be supplemented by contractor support estimated to require approximately $2.4 million for a total of $3.0 million.